THE

FARMER'S MAGAZINE:

MONDAY, 10. MAY, 1813.

(No. LIV.)

BRANCH I.

ORIGINAL COMMUNICATIONS.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

An Account of the Grasses and Produce of the Orcheston Meadow in Wiltshire. By Mr Tanner.

SIR,

A WORTHY friend of mine, a few months since, put into my hands a letter, requesting a paper, containing a local description of our Orcheston Meadow; together with the plants of which it consists,—their produce and value. This request would have met with an earlier attention, had my other engagements permitted me to turn my thoughts to the subject. 'Many 'wonderful tales have been told respecting the Orcheston grass, 'and the astonishing fertility of the meadow in which it flou-'rishes.' Some have declared, that it is a grass peculiar to Orcheston and its vicinity, and known in no other part of England; others, that it is only a variety of a well known species. Botanists have visited this meadow at different seasons of the year, and have been governed in their report by the grasses then most predominant; and this circumstance, more than any other, has given rise to the variety of opinions that have gone abroad. Particular grasses are more or less prevailing in all meadows, according to the season of the year, or the wetness of the weather the preceding summer or winter. Nature, when left to her own operations, will at all times overcome the designs of man. I have seen meadows growing the best herbage one year,—but in consequence of a succeeding flood, and the water remaining afterwards too long, produce the coarsest grasses the following season. The *Agrostis* tribe, with the *Triticum repens*, have taken place of the *Poæ*, and other sweet grasses; and *vice versa*, when wet land has, by draining, been laid dry. It is not, therefore, possible for *any person* to be *correct* in *his* description of this far-famed meadow, who has had only ONE opportunity of *visiting* it: *Yet*, strange to tell, in *this age* of *improvement*, a *learned and eminent* Divine has had the TEME-

RITY to state, in *the most public* manner, that it is his favourite *Fiorin* that gives the bulk of the crop; and this, *without* the *trouble* of *examination*, or *opportunity* of *inspection*. What extravagancies will not *men* run into, when *seated* on *their favourite hobby?* But I would restrain *my* pen, lest I partake of *their folly*.—The meadow producing the grass which has excited so much curiosity, is situated at Orcheston St Mary, about eleven miles from Salisbury; its contents about 2½ acres. Its produce depends altogether on the rising of the springs, which ooze forth from the neighbouring hills;—the soil a flinty gravel, intermixed with a porous black earth. If the winter be wet, the springs rise very early, and completely overflow the meadow, which secures an abundant crop. The autumn of 1811, and the spring following, were very favourable for the growth of the grasses; and both the first and second crops were good. The first was cut in the last week of May, and produced about *two* tons of hay per acre; the last in July, and yielded about *one and a half* ton to the acre. It is not every year that a second crop can be obtained; for, after a dry spring, the waters soon cease to flow, and the meadow puts on as russet a hue as any of the inferior pastures.—Much has been said of the *excellent* quality of the hay, when well made; that, for instance, it will fatten pigs; and that it abounds with the saccharine quality more than other grasses. If the testimony of the present occupier, and his neighbours, can settle this question (and I see no reason why they should not), the *acreable* produce is not of greater value, take seven years together, than an acre of good St Foin, or other artificial grasses. There is more risk in making the meadow grass than the field grass, it being very soon spoiled by bad weather, arising from its uncommon luxuriancy.—I visited this meadow, for the first time, in the month of May 1811, and found the major part of the crop to consist of the *Poa trivialis*, or rough-stalked meadow grass, with a few *culmi* of the *Triticum repens* (or *common couch*), and meadow foxtail. In the last spring, I again examined the meadow *very particularly;* and found the crop to consist of the same grasses as before, varying a little in their proportions. The *Triticum repens* made a greater appearance. In the month of August, I took another ride to see if *Fiorin* was taking the lead of the other grasses. This I was prepared for, and expected to find; but it was by no means the case; I could discover no more of the *Stolonifera* than before. On examining the hay of the second crop, it consisted of the *culmi* of grasses common to all meadows, with the exception of the *Triticum repens*. This grass, at this season, prevailed. In soils in general, when laid down to pasture, the common couch (*Triticum*) soon wears out; it *will not* bear the constant treading of cattle. Wherever this

grass is found in pasture, it proves either that the field has not long been laid to pasture, or the soil remarkably rich. The latter is the case in this instance. But you will say, What is the long grass, of which we read so much? It remains for me to mention a peculiarity in the grasses in this meadow, and some others in its vicinity, which I do not recollect to have seen in any other to the same degree, arising probably from the *warmth* and *richness* of the soil. When the water begins to recede, in the late spring months, the *culmi* of all the grasses (the *Poa trivialis* in particular), from their great luxuriancy, lodge on the soil, and form a complete mat, and in this state throw out roots at their joints, and appear, before their *panicles* show, to be the *stolones* of some *Stoloniferous grasses.* Let a person, not previously informed of this circumstance, visit the meadow in the latter end of April, and he would probably, with others, suspect the whole, or greater part of the produce, to be a *Stoloniferous* production. I have traced the *culmi*, for instance, of the *Trivialis* and *Foxtail* amongst the mat of other grasses, for *fourteen* or *fifteen feet*, with *roots* at *all* the *joints*, till at the last they shot up erect, and were taken off by the scythe only about *two feet* long. The mat of *culmi* on the ground is left untouched by the scythe when mown, very similar to the *stalks* of an *overgrown crop* of *vetches.*

I hope I have not been tediously particular in my descriptions. If so, let the desire I feel to clear up the contradictory accounts given by my predecessors in this department, be my apology.

The *Agrostis stolonifera* is one of the *latest* grasses we have, and *never* was *known*, *even* in a *cultivated state*, to *produce* a crop *till* the *autumnal months.* But it is asked, 'How is it that 'it grows so rapidly in its natural state, as to enter largely 'into a hay crop, cut the last week in May?' Here is the mistake;—the *culmi* of *other* grasses, throwing out *roots* at their joints, have been *considered as* the *stolones* of this *Agrostis.* Should this paper prove acceptable to you and your readers, and tend in the smallest degree to the elucidation of the study of our *indigenous grasses*, it will afford a pleasing gratification to

Your obedient servant,

Urchfont, 6th Jan. 1813. THOS. TANNER.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

An Account of several unsuccessful Attempts to reclaim Flow-Moss for Cropping.

SIR,

THIS being a stormy day, and little doing in the fields, I shall give you a few thoughts as they may occur to me, upon the subject of reclaiming flow-mosses.

Sixteen years ago, I began the improvement of a flow-moss, from 6 to 12 feet deep, bearing nothing but a stunted kind of heath and a dry white fog, situated in the lower part of my farm. I was induced to this, partly on account of its situation, being directly in the view of the house; and partly by a pamphlet published about that time, accurately describing the plan said to have been successfully pursued by Mr Smith on Swinridgemuir moss;—hoping, if I followed Mr Smith's plan, I should get it turned into arable land bearing good crops of grain, and thereby add to my income. I began briskly; and lest, by deviating from Mr Smith's plan, I might endanger my success, I followed it as closely as possible. However, after all the hopes of success which I had indulged nearly two years, while preparing for the first crop, which, as recommended, was potatoes in lazy-beds, I was sadly mortified when my potatoes turned out to be scarcely worth digging from the soil. But now, having commenced, I was under the necessity of either carrying it through, whether at loss or profit, or bearing patiently the scoffs of my wiser neighbours, who still looked on the improvement of flow-moss as a mere chimera. To this, at that time, I could not submit; and thus I had a new motive, in addition to my former ones. Judging that, by the failure of my potatoe crop, the moss would not be so much meliorated as it ought to have been, I planted the same piece with potatoes for a second crop, with a little fresh dung, as also what more of the moss I had got prepared the preceding year for a first crop; and carefully attended to them during the summer; but did not go on with any new preparation, thinking it best to proceed with caution, until I saw how that year's crop turned out; which, I am sorry to say, was a very poor one. I began, by this time, to have some doubts of the plan pursued by Mr Smith answering my moss; but being still unwilling to give up the cause, I took the advantage of a strong frost, which lasted several weeks, the succeeding winter, and carted from a hill of freestone gravel as much as covered a part of the moss (that had been previously levelled and well limed) to about the thickness of an inch. This piece I planted with potatoes the following spring, in lazy-beds, with dung; from which I had about 2 pecks, or 84 pound of potatoes, per fall. Same year I sowed oats on the former piece, which produced a very poor crop. The following year, I sowed the whole with oats and grass-seeds. Upon the moss first taken up, had very poor grain; upon the other, which was gravelled during the former winter, I wheeled a good dressing of earth from an adjoining field, after it was delved; and the crop upon it turned out about 4 bolls per acre, and a slight crop of hay. The first piece did not need the expense of mowing, as the crop would not pay for cutting and gathering;

and I now willingly gave it over, and left it to its fate. It is now covered with heath. The other piece, which adjoins to an arable field, I keep in rotation, although it scarce pays the annual expense:—for the original outlay, I consider it sunk for ever.

Since that time, I have tried various methods of reclaiming flow-moss; but, by all of them, I have found it a losing business. I find also, that all those who have tried the reclaiming of what can be properly called flow-moss, have, like me, after throwing away considerable sums, with a view to make it carry grain, given up the business altogether; and the mosses are fast getting into their old state.

I am led to these observations, by seeing in your Magazine, vol. 12. p. 152, one of your correspondents hold out, 'that 'flow-moss, if it can be laid dry on the surface, is as capable 'as any other soil of being made to yield the most valuable 'crops of the best of grain, roots and grasses.' And in p. 458, &c. he particularizes a great many kinds of grain, roots and grasses that thrive well on moss. All this looks well on paper; but when he points out the very spots these fine crops grew upon, the reader is led to consider how this account agrees with his own knowledge of the facts. Your correspondent, indeed, justly observes, p. 463, 'To attempt to argue with the igno-'rant, indolent, and prejudiced, would be to very little pur-'pose. One instance of successful practice, is better than a 'volume of the best formed theory.' But when he adds, 'Ten 'or fifteen bolls of good grain, raised in one season from one 'acre of moss, will speak home;'—this made me pause—and look to see if it was flow-moss your correspondent was speaking of. And what was my surprise, when I observed mosses pointed out as carrying these heavy crops, which, with deference to Mr Aiton, I knew to have never produced two bolls per acre in any one year;—such as Mr Mackenzie's, Mr Miller's, and others in the vicinity of Glasgow. It is very true, that the gentlemen above named have made both spirited, extensive, and well-conducted improvements on flow-mosses; but, had your correspondent seen these very mosses when the crops were growing, particularly at reaping-time, I believe he would not have held them up as models for encouraging others to improve flow-mosses. But it appears that Mr Aiton had trusted too much to the reports of others; and I have no doubt but your liberal correspondent would thank any person who should give a correct statement of the whole outlay, returns, and improvement of these mosses. As the operations have been conducted in the best manner, such a statement would be useful to others who may intend to improve.

This I will not attempt to do; but, for the information of

the public, I shall take the liberty of stating the preparation, and the crops that followed, on part of Garnkirk moss; which, as it came often under my own eye, I can do pretty near the truth. This moss is nearly divided into two equal parts, by the road leading by Cumbernauld to Glasgow. Mr Mackenzie began on one side of the road, and made a large drain round that part; then cut small drains from it to the drain along the road-side, which formed the field into about 18 feet ridges. The moss was next delved and levelled to good purpose; then clay was carted from an adjacent field, and laid down on the road-side, and afterwards wheeled upon planks over the field, and applied very plentifully. Dung was also brought from Glasgow, and wheeled on the ground in the same way. In spring, oats were sown, and howed in, in place of harrowing. The oats brairded very finely, and for some time had a promising appearance; but, when harvest came, they were scarce worth reaping, except on a corner which had been for years covered with water from the high grounds after every flood of rain. The following year, potatoes were planted on a great part of this field, with a fresh supply of dung, in small drills, with the spade; and were also well wrought during summer. After all, in the month of October, when they were taken up, they did not in general exceed the size of a plum. Next year, the moss on the other side of the road was prepared in the same way as the former, getting also a good dressing of clay and dung, and was sown with peas, which Mr Aiton, in one of his publications, states as 'a very valuable crop.' Certainly Mr Aiton, or his informer, must have seen this crop at a very favourable period of its growth, for I can safely assure him, the crop was not worth the expense of reaping and gathering.

Thus, Sir, I could go on with the after management, and I could also give an account of the improvements of Dr Jaffrey, Mr Miller, and others, as well as of Sir Charles Edmondston's moss, in the parish of Kilsyth, conducted by James Davidson, Esq., factor on the estate. This, like the others, was wrought in the best known method, and at an immense expense. But a particular account of all these would run this paper to too great a length; and as they are all, like my own improvements, given up as unprofitable undertakings, and the mosses are again feeding their old inhabitants, viz. heath and wildfowl, it is needless at present to detain you with further particulars about these mosses.

In page 462. vol. xii. of the Farmer's Magazine, Mr Aiton, speaking of Farmers, says, 'To talk of raising grain from deep 'flow-moss, cannot fail to excite their contempt:' and adds, 'They will tell you that nothing of the kind could be done on 'any part of the farm which they possess.' And in the same page he says, 'Flax has been found to grow well on moss;' and

as a confirmation thereof, adds, 'The best flax ever seen in that 'part of the country was raised on flow moss, by Mr John 'James, on the estate of Springkell, Dumfriesshire.' I doubt nothing of Mr Aiton's veracity in reporting this, but rather think that his information has been incorrect. Had Mr Aiton been a little more moderate in his quotations of instances of great crops, perhaps he might have persuaded some young farmers to adopt his favourite theory: But to tell any experienced farmer, that a deep flow-moss is a soil well adapted for raising barley, beans, and flax, is enough to satisfy him that the adviser is not well acquainted with the subject he writes upon; and although it is not very likely to excite his contempt, he may safely say, that no such crops will grow on the flow-mosses possessed by him. If I were disposed to enter on a full examination of Mr Aiton's advices to proprietors and farmers, to reclaim their mosses of every description, I could very easily show, that if they would first examine those pointed out as flow-moss, and carrying such extra crops, at the time of harvesting, there would be little danger of their being induced by his writings to enter on the improvement of pure flow-moss, in ordinary situations. But as Mr Aiton's writings on moss are, I believe, like his writings on dairy produce, considered by practical farmers to be only mere theory, I will not, at present, enter any further upon them.

As I find this letter has run to a much greater length than I intended when I began, I shall now be brief.—Although I am no advocate for reclaiming pure flow mosses, in the view of making them carry heavy crops of grain, I do not consider our mosses as useless to the proprietor and farmer, but rather look upon them as an inexhaustible treasure, even if they were of no other use than to make compost middens: I have reaped much benefit from moss in this way; and there are many other purposes for which they are valuable, particularly for fuel and for planting. Even on Garnkirk moss, which could not be brought to produce grain of any value, the firs and other trees are thriving very well; and I maintain that any moss, not too elevated, will, if kept moderately dry, be profitably employed in raising firs and other trees adapted to the soil. And although I thus reprobate the theory of making all flow-mosses carry good crops of grain, &c. I am confident that wherever moss carries any of the various grasses, so as to have a green surface, or is so firm as to produce a good crop of heather, it will pay for improving in some situations.

Thus, Sir, I have offered a few observations on the reclaiming of mosses, founded on facts and experience. Some persons may think I am 'ignorant, indolent, and prejudiced;' but I assure you, if I am, I became so at the expense of my purse.

Dumbartonshire, 2. March 1813. M. F.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Remarks on the Management and Produce of Dairy Cows.

SIR,

I HAVE often regretted, that writers should have speculated so much upon different subjects, and particularly upon agriculture. A cow that produces her full weight of cheese yearly, or to the value of 22*l.* Sterling in milk, is very seldom to be found; and if there are any such, they must be uncommonly well fed, and the milk sold at the highest rate. Such statements must do harm both to proprietors and tenants. Few great proprietors are real judges of land: They listen too often to these speculative writers; calculate upon their data; and, in too many instances, find tenants who, thinking they can manage as well as others, come under agreements which, when too late, they find cannot be performed:—hence ruin to the tenant, and disappointment to the proprietor. Besides, the land is reduced, and must therefore be let to another tenant at a lower rent, who, if a prudent man, will also calculate upon the sum to be laid out of his pocket to bring the farm back to its former improved state.

I have no doubt, that upon such land as that of the Western counties of Scotland, there has been no method of farming more advantageous than the dairy for a number of years past, nor even now, when we can have from 25s. to 26s. for butter, and 12s. for sweet-milk cheese, per stone of 24 lib. English: and farmers in general are of this opinion. The dairy cow is fonder of a full bite, with little travel, than of finer pasture. If she have both quantity and quality, which all animals require, she will give more milk, and continue it longer, than any other cattle I know. Dairy cows feed quietly, and then lye down, while other cattle are restlessly roaming about the field: so that, when not in milk, they are soon ready for the butcher. It is well known, that a change of pasture has a considerable effect upon milk cows the first year, even when taken to better than they had before; and that they frequently do not take the bull, although they be kept in good condition; which I cannot well account for. The young yell cattle are put to the high lands of this county in summer to be grazed, where they get a full bite of coarse herbage. They would very much disturb the milkers, if pastured along with them.

A friend of mine, who possessed a high situated farm, without enclosures or planting of any kind to give shelter, some years ago turned his mind to the improvement of his property, with a view to keep a dairy upon a small scale, as he was near a manufactory.

As soon as he had so far improved his land, that it would produce a full bite, he purchased two or three cows of the dairy breed; but he soon found that they did not altogether answer his expectations in his high exposed situation, as, in stormy days, from the thinness of their hides and little hair, they were frequently found standing in the lowest places, when the rest of his cattle were feeding freely.

Unwilling to give up his pursuit, and to suffer the laugh of his neighbours, he purchased a young dairy bull, and by him bred from his stock of cows in general.

This he has continued to do for these ten or twelve years; and, by rearing his cattle upon his high lands, has succeeded, and is now followed by the greatest part of those around him.

For one year, from the first of January, he kept an exact account of the produce of eleven cows (his whole stock), which were well fed, and, in point of condition, better than in other years; and the produce was 133*l.* 4s. 9d. exclusive of the milk made use of in a family of fourteen.

His butter he sold at 22s. per stone, Tron; his skim milk at 1½d., and his milk from the cow at 3d. the Scotish point (nearly two English quarts).

My friend's cattle, when he began his improvements, were from 15 to 16 stone, Ayrshire tron weight, or 24 lib. English. Now, he has none under 20, and from that to 26 stone; and considers the dairy cattle as cheaply brought up as any other, till near dropping their first calf.

The fiorin grass may be of great value to agriculturists in many places, and to none more than to those who keep dairies. To them, green food in winter is of vast importance, particularly in such a winter as this, when the turnips are so completely lost by the late severe frost. But I am as fully of opinion, that no good farmer will ever plant fiorin upon land that will bring good crops of clover and rye-grass.

Ayrshire, 16. *Jan.* 1813. Your, &c. A Plebeian.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Cursory Observations on Changing the Breed of Mountain Sheep.

Sir,

You have been often told, that the Farmer's Magazine is an useful vehicle for diffusing agricultural information over every part of the kingdom; but, however pertinent, full and satisfactory it is on agricultural subjects, it is deficient in what relates to the management of sheep. There is certainly capital to a great amount in this species of live stock; and the economy of sheep farming is very complicated. The nature of the pasture, which varies in every different situation, requires a judgment

no less discerning and steady, than the various soils subjected to the plough; and its study is rendered more complicated, by the tendencies and propensities of the animal, and that not of a species in general, but of the many varieties which the whim and caprice of man has brought into existence. What perplexes the storemaster still more, and frequently overpowers his exertions for the improvement of his stock, is the irresistible influence of severe winters. Instead of realizing an additional price from the amelioration of his wool, and purification of his stock from all combinations with different varieties, he may have to lament the inability of his improved flock to endure the severity of winter, and be taught by sad experience, that his breed must be adapted to the climate and productions of his farm.

What immediately called forth these observations was the reading, in the 50th Number of your Magazine, the Ettrick Shepherd's means of improving the breed and wool; and though I know Mr Hogg writes from a practical knowledge of the nature and properties of both sheep and pasture, yet I cannot but dissent from him in the method he prefers for the amelioration of wool, which is, the crossing with a fine-woolled breed. This, I acknowledge, is the most immediate and most powerful plan; and custom has sanctioned it as the preferable one: But its unqualified adoption, in every situation, is not without a great risk, as it subjects the stock, which is generally numerous, to many disabilities; and if a series of unfavourable seasons should occur during the time of changing, the stock is placed under disadvantages which it will not get rid of for many years, though it be under the most prudent and cautious management. A mongrel progeny retains, with great obstinacy, the imperfections of both breeds of which it is a compound; while the real excellencies of either cannot be recalled, nor rendered permanent, till after a long and assiduous cultivation. In the mean time, the extra sheep cannot be sold for breeding from; and unless the pasture fully prepare them for the butcher, they are a real drug on the farmer's hand, which he cannot exchange for money almost at any rate. A mongrel's constitution is always inferior to that of a pure breed. In no other class of animals, perhaps, is this so evident as in sheep, where the severity of the seasons searches the constitution so near, that if ought faulty be in it, it must immediately yield. Hence, in elevated situations, where the seasons act with unmitigated rigour, a bad constitution is a serious concern.

In my opinion, the Ettrick Shepherd has treated the Sturdy, or Dropsy in the Brain, with judgment and precision. Its commencement cannot be foreseen, nor can any disorder presently existing be charged with introducing it; though I am

certain, indisposition always occurs previous to its first attack. But this (which in general is very slight) is probably only the first symptom of its approach, and not a primary disease itself. But as soon as the disease is completely formed, the animal thrives again, little inferior to a healthy sheep. The corrosive influence of the sac seems to be most powerful upward. I have not unfrequently seen the brain-pan eaten through, and the skin nearly corroded away, and the brain itself little damaged. The most successful way of removing this disorder, is by inserting a wire along the nostrils. A small thrust sends it through a sieve-like bone seated in the basis of the brain. The wire then passes nearly through the centre of the brain itself, and perforates the bag, inflated with a serous liquor, which follows the wire down the brain; and to provoke the animal to sneeze at this time, is very helpful, as it accelerates the contents downwards. In all dissections of the brain after the animal died, by probing either this way, or by any other, I invariably found an inflammation of the brain to have terminated its existence.

If you think these observations can be of any service, you will grant them a corner in your Publication. It will gratify me a little to see them again in print; and I expect they will excite some abler genius to describe the nature and progress of diseases incident to Mountain Sheep.

March 15. 1813. A—— S—L.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Outlines of a System of Book-keeping for Farmers, with a Specimen of the Accounts for one Year.

Sir,

Should you deem the following attempt to supply the desideratum of a System of Book-keeping for Farmers worthy of a place in your Magazine, I shall consider the trouble of compiling it sufficiently rewarded. To such of your readers as are conversant with Book-keeping by Double Entry, the annexed Scheme will require no illustration. For the sake of those to whom that system may not be familiar, the following remarks are submitted.

Book-keeping may be defined the history of property, taking the word Property in its most extensive signification. The chief objects of such a history are, 1st, To record all the changes that take place in the state of property; and, 2dly, To exhibit the concisest view possible of the increase it receives, or the diminution it sustains, in consequence of these changes. To the first of these, nothing more is necessary than to write down, in plain language, and in the order of time in which they occur, all the transactions in which the property is concerned. Such

a record is called a Waste-book, or Day-book. For the second, the most obvious method is, to collect all these transactions into one account, placing the sums by which the property is increased on one side, and those by which it is diminished on the other. But such an account, though it might exhibit the total increase or diminution that has taken place in a given time, would afford a very imperfect view of the state of property, when it consists of different kinds, or when the transactions concerning it involve different individuals. It is often necessary to know, not merely the general result, but the bearings and relations of all the parts to the whole and to one another. The usual, perhaps the only method of accomplishing this object, is by means of a separate book called a Ledger, as follows.

All the different kinds of property, or different individuals mentioned in the Day-book, are considered as parts of that system, of which it is proposed to write the history; consequently, every change that takes place in the state of the real property, is merely the transferring a certain value from one part of the system to another; or, in other words, every transaction, as recorded in the Day-book, may be resolved into giving and receiving. Having ascertained the parts or individuals concerned in any particular case, an account is opened in the Ledger for each, consisting of two sides, or sets of money columns, distinguished by the terms DR. and CR. The amount of the transaction is then entered in the Dr. side of the part that receives, as a sum for which that part is accountable; and also in the Cr. side of the part that gives, as a sum of which that part is discharged. The whole of the Day-book, for any given time, being thus transferred to the Ledger, the Dr. side of each part may be considered as consisting of all the sums that have been expended on that part, and the Cr. side of those it has paid in return. Hence the difference between the two will show whether, and how much, that part has contributed to increase or diminish the property.

Upon this obvious principle of *double entry*, the accounts even of the most complicated concerns, are combined into a simple and beautiful system, exhibiting a concise view of every thing necessary to be known regarding the state of property at any period, and the changes it has undergone in any given time. Some make use of a third book called a Journal; but very little is gained by it, and still less by those numerous rules for journalizing in particular cases, which involve the young book-keeper in endless perplexity, without either aiding his memory, or exercising his judgment. A Journal is merely a copy of the Waste-book, having the Dr. and Cr. expressed at the beginning of each transaction; and surely the same labour

that is necessary to transfer a Day-book entry to the Journal, would prepare it for the Ledger. But even admitting the utility of a Journal in its utmost extent, the rules that have been laid down for journalizing must appear to every one who reflects on the subject, not merely useless, but absolutely hurtful, as tending to prevent that exercise of the intellect, which, while it improves the understanding, is at the same time the best security against errors. But to apply the general principle to the subject now under consideration.

When a farmer agrees to pay so much per acre, or a certain sum altogether, for a farm, he is supposed to have valued every field separately, and to have made his offer from the average or sum of the whole. Whenever, therefore, he pays a rent, he is to be considered as laying out on each field a sum equal to the value he originally put on that field. In like manner, when he employs the produce of his live stock in general, or the labour of his working stock in particular, on any field, he expends on that field a sum equal to the value of that produce or labour. For this expenditure, he looks to his farm alone for remuneration. The different parts, therefore, of which a system of farmers' accounts consists are—Cash, Working Stock, Feeding Stock, and the several fields of his farm; which last may be designated by particular names, or by the Nos. 1, 2, 3, 4, &c. From these particulars, the following Scheme has been thus compiled.

The Day-Book opens with an inventory of the farmer's capital at Whitsunday, immediately after paying the rent for the preceding crop;—a period which, for several reasons, appears to be the best commencement of the farmer's year. To the Inventory is annexed the state of his debts, and then follows an account of all the sums that have been expended, and a plain narrative of all the operations that have been carried on in each field. This narrative may be entered daily, weekly, monthly, or at any other period that may be found most convenient; taking care that a particular account be kept, either by the foreman or some other person, of all the operations during the time that elapses between the entries. In the annexed system, the entry is supposed to be made every four months, merely for the purpose of condensing the subject into a smaller compass. The dung of the live stock in general is expressed in loads, and the labour of the working stock is converted into yokings; a yoking being understood to signify the labour of one man and a pair of horses for 4½ hours. The loads and yokings are entered in columns allotted for them; but the money columns opposite are left blank, the value of the yokings not being fixed till the end of the year. The fodder given to live stock is estimated by acres; reckoning, in this scheme, five acres of straw equal to one acre of full hay or turnip crop.

As soon as a transaction is recorded in the Day-Book, it is also to be carried to the Ledger. In transferring the Inventory, it is to be observed, that as capital is the source from which every article of the Inventory flows, and into which it is destined to return, either increased or diminished, each of these articles is accountable to Capital for the amount of its value; and Capital, on the other hand, is accountable for all debts. Hence, according to the principle explained above, an account is opened for Capital, making it debtor to A B for the sum due him; and creditor, by Sundries, viz. Cash, Working Stock, and Feeding Stock; also an account for each of these articles, making them debtor to Capital for their respective amounts; and, lastly, an account for A B, making him creditor, by Capital, for the sum due him.

The first transaction in the Day-Book, after the Inventory, is in No. 1., 'Paid cutting 15 acres wheat, 8*l.* 11s.' An account is therefore opened for No. 1, which is made Dr. to Cash for 8*l.* 11s., and Cash Cr., by No. 1., for the same sum of 8*l.* 11s. The next is also in No. 1., 'Work of men and horses, '23 yokings.' No. 1. Dr. to Working Stock for 23 yokings, leaving the money columns blank; and Working Stock Cr., by No. 1., for 23 yokings.

When all the transactions for a year have been thus transferred from the Day-Book to the Ledger, and a new set of books are to be opened for next year, all the old accounts must be balanced. This operation commences with Cash Account, the Dr. side of which contains all the sums that have been received, and the Cr. side all those that have been paid out during the year. If the sides are unequal, the Dr. side will be greatest; and there must be a sum in hand equal to the difference; which sum is to be put to the credit of Cash Account, as a balance paid to Capital on settling accounts. An imaginary account is then opened, called Balance, to the Dr. side of which the balance of Cash is carried, to be afterwards transferred to Capital. The next account to be balanced, according to our plan, is Feeding Stock. Estimating the dung at 5s. a load, (for it is of no consequence, as will immediately appear, at what rate it is valued), the amount of the Cr. side, or produce of the Stock, is 194*l.* 5s. But it is supposed, that the stock on hand is worth 174*l.* 15s.; and as this sum can be paid back to Capital on demand, by disposing of the stock, the latter is entitled to credit for that sum. The amount of the Cr. side is then 369*l.*, while that of the Dr. side is 191*l.* 5s., exclusive of the value of 19¼ acres crop, consumed during the year. If the produce of these 19¼ acres be valued at more than 177*l.* 15s. (the difference between the two sides) there will appear to be loss on the Feeding Stock; and if it is valued at less, there will appear

to be profit. But, strictly speaking, there ought to be neither profit nor loss ascribed to the Stock itself; feeding cattle being only a particular method of disposing of the produce of land. Dividing, therefore, 177*l.* 5s. by 19½, we have 9*l.* for the price at which the produce of each acre has been disposed of; and thus, whatever gain or loss there may be, it is divided, as it ought to be, among the different fields, according to the shares they contributed to the support of the stock. In this way, it is obvious, that it is of no moment how the dung be valued. If a high price is put upon it, the expense and produce of the land will be increased in the same proportion; and *vice versa* if the price is low. As to converting white fodder into acres of full crop, every man must be regulated by his own judgment, according to circumstances. In filling up the blanks in the Dr. side of Working Stock, the acres are also to be estimated at 9*l.*, because that sum could have been drawn for each, had it been employed in feeding black cattle. The Dr. side of that account will then amount to 874*l.* 4s., while the Cr. side, including the present value, is 480*l.* 6s., leaving a difference of 393*l.* 18s., for which the Working Stock has afforded no other return but its labour. Dividing, therefore, 393*l.* 18s. by 1212, the number of yokings, we have 6s. 6d. as the actual value of one yoking; at which rate the yokings in all the other accounts are to be estimated.

The Stock accounts being thus closed, Nos. 1, 2, 3, &c. are to be made Cr., by Balance, for whatever quantity of their respective produce may remain on hand, estimated at market price; and these sums are carried to the Dr. side of Balance account. As A B's money is not paid,—in order to close the account he is charged Dr. to Balance for the sum, and Balance Cr. by A B; from which it will be transferred to the Dr side of the next year's Capital Account.

Returning again to No. 1., the amount of the Cr. side, or total produce, is found to be 641*l.*, while the Dr. side, or expense, is only 196*l.* 1s. 7½d., leaving a profit of 444*l.* 18s. 4½d. As No. 1. is not Dr. or accountable to any other part of the system for this sum, it is made Dr. for it to an imaginary account, called Profit and Loss; in the Cr. side of which the sum is also entered. In No. 2. the expense is found to be 490*l.* 16s. 8d. while the return is nothing. As there is no other part of the system to which this sum can be charged, it is so much loss, and is accordingly entered against the imaginary account as such. * All the other accounts being closed in the same way,

* The beauty and elegance of arrangement in the Italian method of book-keeping, are nowhere more conspicuous perhaps, than in Profit and Loss account. The fundamental principle of the method,

as

it is obvious that the Dr. side of Profit and Loss Account will contain all the losses, and the Cr. side all the gains. The difference in the following scheme is 78*l.* 16s. 8½d. profit, and must be carried to the Cr. side of Capital, as the increase it has received during the year. With regard to Balance Account, it is equally obvious that its Dr. side contains the farmer's cash and stock of every kind, that is, his *gross* worth; and the Cr. side the amount of his debts. The difference, therefore, is his *neat* worth at the end of the year. Now the Cr. side of Capital Account contains his *gross* worth at the beginning of the year, together with his profit during the year. But his gross worth at the beginning of the year is composed of his debts and *neat* worth at that period; therefore the Cr. side of Capital may be said to contain his debts at the beginning of the year,—his neat worth at the beginning of the year, and his profit during the year. By adding together the two last, we have his *neat* worth at the end of the year. The Cr. side of Capital, therefore, actually consists of his debts at the beginning of the year, and neat worth at the end of the year; while the Dr. side contains his debts at the beginning of the year. If, then, his neat worth at the end of the year be brought from the Cr. side of Balance Account to the Dr. of Capital, the two sides of the latter will consist of the same articles, though differently combined, and ought therefore to be equal. If they are not so, some error has been committed.

It is perhaps unnecessary to observe, that the sums stated against household are in reality produce of the farm, for which household has made no return. They are therefore to be considered as part of the profit, which thus amounts to 166*l.* 16s. 8½d. Had the capital embarked in the concern (1093*l.* 19s. 6d.) been laid out at interest at *5 per cent.*, it would have yielded, after deducting income tax, 48*l.* 4s. 6d., leaving a clear profit of 118*l.* 12s. 2½d. for risk and personal trouble in farming. The proportion that each field contributes to this clear profit, may be accurately ascertained, thus:—Before balancing Feeding and Working Stock, charge each with the interest of its value and outlay, making Capital Cr. by the same sums. The price of the labour and food would thus be increased, and that increase

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as has already been explained, is to make every sum a debt due by one part of the system to another. Accordingly, every part is made Dr. to Profit and Loss for the profit it yields, thus converting the profit into a debt; but as its creditor is an imaginary account, it is obvious, that the debt will never be demanded—it is therefore so much gain. On the other hand, all Losses are charged as Debts against Profit and Loss; but, for the same reason as before, these debts never can be paid—they are therefore real losses.

would be divided among the fields, in exact proportion to the quantity that each received of the one, or contributed to the other. The interest of any extraordinary outlay on a field, (as lime on No. 2.) may also be charged against that field, and carried to the Cr. of Capital. The balance of Profit and Loss Account, added to Household Expenses, would then exhibit how much more is gained by employing the Capital in the concern, than by laying it out at interest.

It is unnecessary to say any thing with regard to the inner columns made use of in the following specimen. Every farmer may adopt or reject them, employ more or fewer, according to his own views of the subject, or according to the particulars he wishes to record. In our first sketch we had introduced several others, but on second thoughts laid them aside.

We do not presume to say, that the method of book-keeping now explained is absolutely the best that can be adopted by farmers; but it appears to us to be well calculated to afford such a view of his affairs, as an attentive farmer may be supposed to desire; and we do think, that some such plan might be brought very near to perfection, were some of your intelligent correspondents to bestow that attention on the subject which it so justly deserves. Any remark or hints for improvement on the plan now submitted to your readers, will be gratefully received by,

Sir, Your obedient Servant,

R. G.

Rose-Bank, Perth, 29th March 1813.

BANK-HEAD FARM, *Crop* 1812.

Fields.	Contents.	Crop.	Rent.
No. 1.	20	wheat and potatoe oats	L. 60 0 0
2.	22	fallow	55 0 0
3.	19	oats after grass	47 10 0
4.	14	Grass	31 10 0
5.	16	barley and oats	40 0 0
6.	15	turnip, potatoes and peas	30 0 0
7.	14	pasture	16 0 0
	120		L. 280 0 0

FARM of BANK-HEAD, from Whitsunday 1812 *to Whitsunday* 1813.

INVENTORY taken 16*th May* 1812.

Cash in hand - - -			L.453 4 6
Working Stock, viz.—			
3 pair of horses, at 72*l.* -	L.216 0 0		
1 saddle ditto, at 40*l.* -	40 0 0		
4 carts, at 11*l.* -	44 0 0		
5 ploughs at 3*l.* 8*s.* -	17 0 0		
Harrows and roller -	5 0 0		
Harness - -	50 0 0		
Other implements -	10 0 0		
4 horse thrashing machine & fanners	65 0 0		
100 sacks - -	25 0 0		
		472 0 0	
Feeding Stock, viz.—			
6 cows - at 7*l.* -	L.42 0 0		
2 calves - at 1*l.* 10*s.*	3 0 0		
5 one year olds at 3*l.* -	15 0 0		
7 two year olds at 5*l.* 5*s.*	36 15 0		
8 three year olds at 9*l.* -	72 0 0		
		168 15 0	
		L.1093 19 6	
I owe A B, borrowed of him on the 15th -		100 0 0	

OPERATIONS from 16. *May* 1812, *to* 19. *Sept.* 1812.

		Loadings	Yokings	
No. 1.	Paid cutting 15 acres of wheat -			L.8 11 0
	Work of men and horses, carting, thrashing, &c. -		23	
No. 2.	Paid for draining - -			12 16 8
	Laid on dung from working stock	70		
	- - feeding ditto	210		
	Work of men and horses, ploughing, carting dung, &c. - -		420	
No. 4.	Paid cutting and making 10 acres hay			3 2 0
	Work of men and horses carting grass and hay - -		20	
No. 5.	Paid grass seeds - -			15 7 6
No. 6.	Paid turnip-seed, labourers, &c.			4 3 6
	Laid on dung of working stock	17		
	- - feeding stock	53		
	Work of men and horses -		50	

	From 19 *Sept.* 1812 *to* 30. *Jan.* 1813.	Loadings	Yokings			
Feed^{g} St.	Sold 4 stots, 3 year old, at 13*l.* 10*s.* - L.54 0 0					
	Sold 3 queys at 14*l.* 42 0 0			96	0	0
	Bought 3 do. 2 year old at 6*l.* L.18 0 0					
	Paid Dairy-maid, one year's wages to Martinmas 4 10 0			22	10	0
Work^{g} St.	Paid men servants and boy's wages to Martinmas - -			53	1	0
No. 1.	Paid cutting 135 threaves of oats at 3½d. - L.1 19 4½					
	Expenses delivering wheat 0 15 9			2	15	1½
	Work of men and horses, ploughing for peas, &c. - -		117			
	Sold 60 bolls of wheat at 2*l.* 14*s.* -			162	0	0
	Sowed 18 bolls, in No. 2. at 3*l.* -			54	0	0
	Reckon the straw of 15 acres equal to full crop of 3 - -					
	Laid up litter for working stock, equal to 2 full acres - -					
	- - for feeding stock, equal to 1 acre - - -					
No. 2.	Paid lime, 600 bolls, at 5*s.* -			150	0	0
	Work of men and horses sowing wheat, &c. - - -		30			
No. 3.	Paid cutting 495 threaves of oats, at 4d. - - L.8 5 0					
	Paid labourers - 1 15 0			10	0	0
	Drove dung of working stock for fallow - -	17				
	feeding ditto -	53				
	Work of men and horses, ploughing, carting, &c. - -		132			
	Sold oats, 10 bolls, at 30*s.* -			15	0	0
	Servants, for meal, 20 bolls, at 30*s.* - - L.30 0 0					
	Given to horses 72½ at 30*s.* 108 15 0			138	15	0
	Taken for household 15 at 30*s.* -			22	10	0
	Straw given to feeding stock, equal to 4 acres - - -					
No. 4.	Hay and grass given to working stock, 12¼ acres - - -					
	Second cutting of 10 acres, feeding stock, 1¼ acre - -					
No. 5.	Paid labourers, and expense delivering barley - - L.2 4 6					
	Cutting 230 threaves b. at 4½d. 4 6 3					
	162 - oats at 4d. 2 14 0			9	4	9
	Work of men and horses thrashing, &c.		38			
	Sold barley, 44 bolls, at 41*s.* -			90	4	0
	Used for household, 2, at 41*s.* -			4	2	0
	Straw given to feeding stock, equal to 2 acres - - -					

		Loadings	Yokings	
	From 19. *Sept.* 1812, *to* 30. *Jan.* 1813, *continued.*			
No. 6.	Paid shearing peas - - -			L.2 5 9
	Work by men and horses about peas, turnips, &c. - - -		43	
	Peas straw, given to horses, equal to - - 1 acre			
	Potatoes for do. - $1\frac{1}{2}$			
	—— $2\frac{1}{2}$ acres			
	Potatoes for household $2\frac{1}{4}$			
	Potatoes for seed in No.3. $0\frac{1}{4}$			
	—— $2\frac{1}{2}$			
	Turnips given to feeding stock 6			
No. 7.	Pastured by feeding st. equal to $3\frac{1}{2}$			
	From 30. *Jan.* *to* 10. *May* 1813.			
House.	Paid personal and household expenses			41 3 0
no.1,2,3,4	Paid rent for crop 1812 L.280 0 0			
5, 6 & 7.	Paid income tax on ditto, at 5 *per cent.* - - 14 0 0			
				294 0 0
Work^{s} St.	Paid assessed taxes - L.9 10 0			
	Paid Blacksmith's account 15 10 0			
	Paid Carpenter's do. - 8 5 0			
	Paid Saddler's do. - 5 6 0			
				38 11 0
No. 1.	Sowed 25 bolls peas from No. 6. at 41s.			51 5 0
	Work by men and horses - -		77	
	Sold $22\frac{1}{2}$ bolls oats, at 40s. - -			45 0 0
	Sowed 16 ditto in No. 4. at 40s. -			32 0 0
	Straw given to feeding stock, equal to 1 acre - - -			
No. 3.	Applied dung from working stock -	14		
	- - from feeding ditto -	42		
	Work by men and horses - -		70	
No. 4.	Ditto ditto - -		58	
No. 5.	Ditto ditto - -		4	
	Sowed 12 bolls of barley in No. 6. at 42s.			25 4 0
	Gave straw to working stock, equal to half an acre - - - -			
	- - feeding ditto, equal to three-fourths of an acre - -			
No. 6.	Applied dung from working stock	15		
	- - from feeding ditto -	35		
	Work of men and horses -		63	
	Peas given to horses, 7 bolls, at 41s.			14 7 0
No. 7.	Bought oats for seed, 15 bolls, at 31s.			23 5 0
	Work of men and horses -		67	

	CAPITAL — —	DR.		
	To A. B. borrowed of him - -	L. 100	0	0
	To balance, neat, worth - -	1072	16	2½
		L. 1172	16	2½

1812.	CASH — —	DR.		
May 16.	To stock, as p. Inventory - - -	L. 453	4	6
1813. Jan. 30.	To feeding stock - - - -	96	0	0
	To No. 1. - - - - -	162	0	0
	To No. 3. - - - - -	15	0	0
	To No. 5. - - - - -	90	4	0
May 10.	To No. 1. - - - - -	45	0	0
		L. 861	8	6

1812.	WORKING STOCK — DR.	Acres.	Bolls.			
May 16.	To capital - - -			L. 472	0	0
1813. Jan. 30.	To cash, servants' wages -			53	1	0
	To No. 1. - - at 9l.	2		18	0	0
	To No. 3. - - at 30s.		92½	138	15	0
	To No. 4. - - at 9l.	12½		112	10	0
	To No. 6. - - at 9l.	2½		22	10	0
May 10.	To cash various accounts - -			38	11	0
	To No. 5. - - at 9l.	½		4	10	0
	To No. 6. - at 41s.		7	14	7	0
		17½	99½	L. 874	4	0

	CONTRA — —	CR.		
	By sundries - - - -	L. 1093	19	6
		78	16	8½
		L. 1172	16	2½

1812.	CONTRA — —	CR.		
Sept. 19.	By No. 1. - - - - -	L. 8	11	0
	By No. 2. - - - - -	12	16	8
	By No. 4. - - - - -	3	2	0
	By No. 5. - - - - -	15	7	6
	By No. 6. - - - - -	4	3	6
1813. Jan. 30.	By feeding stock - - - -	22	10	0
	By working ditto - - - -	53	1	0
	By No. 1. - - - - -	2	15	1½
	By No. 2. - - - - -	150	0	0
	By No. 3. - - - - -	10	0	0
	By No. 5. - - - - -	9	4	9
	By No. 6. - - - - -	2	5	9
May 10.	By household - - - - -	41	3	0
	By Nos. 1, 2, 3, 4, 5, 6 & 7, rent, crop 1812 L. 280 0 0			
	Income tax 14 0 0			
		294	0	0
	By working stock - - -	38	11	0
	By No. 7. - - - -	23	5	0
	By balance in hand - - - -	170	12	2½
		L. 861	8	6

1812.	CONTRA —	CR.	Loads	Yokings.			
Sept. 19.	By No. 1. - -	at 6s. 6d.		23	L. 7	9	6
	By No. 2. - -	at 5s.	70		17	10	0
	By ditto - -	at 6s. 6d.		420	136	10	0
	By No. 4. - -	at 6s. 6d.		20	6	10	0
	By No. 6. - -	at 5s.	17		4	5	0
	By ditto - -	at 6s. 6d.		50	16	5	0
1813. Jan. 30.	By No. 1. - -	at 6s. 6d.		117	38	0	6
	By No. 2. - -	at 6s. 6d.		30	9	15	0
	By No. 3. - -	at 5s.	17		4	5	0
	By ditto - -	at 6s. 6d.		132	42	18	0
	By No. 5. - -	at 6s. 6d		38	12	7	0
	By No. 6. - -	at 6s. 6d.		43	13	19	6
May 10.	By No. 1. - -	at 6s. 6d.		77	25	0	6
	By No. 3. - -	at 5s.	14		3	10	0
	By ditto - -	at 6s. 6d.		70	22	15	0
	By No. 4. - -	at 6s. 6d.		58	18	17	0
	By No. 5. - -	at 6s. 6d.		4	1	6	0
	By No. 6. - -	at 5s.	15		3	15	0
	By ditto - -	at 6s. 6d.		63	20	9	6
	By No. 7. - -	at 6s. 6d.		67	21	15	6
					447	1	0
	By balance present value -						
			133	1212	L. 874	4	0

1812.	FEEDING STOCK — DR.		Acres.			
May 16.	To capital				L.168	15	0
1813. Jan. 30.	To cash for sundries				22	10	0
	To No. 1.	at 9l.	1		9	0	0
	To No. 3.	at 9l.	4		36	0	0
	To No. 4.	at 9l.	1½		13	10	0
	To No. 5.	at 9l.	2		18	0	0
	To No. 6.	at 9l.	6		54	0	0
	To No. 7.	at 9l.	3½		31	10	0
May 10.	To No. 1.	at 9l.	1		9	0	0
	To No. 5.	at 9l.	½		6	15	0
			19½	L.	369	0	0

1812.	CONTRA — CR.		Loads			
Sept.19.	By No. 2.	at 5s.	210	L.	52	10	0
	By No. 6.	at 5s.	53		13	5	0
1813. Jan. 30.	By cash for sundries				96	0	0
	By No. 3.	at 5s.	53		13	5	0
May 10.	By No. 3.	at 5s.	42		10	10	0
	By No. 6.	at 5s.	35		8	15	0
	By balance present value				174	15	0
			393	L.	369	0	0

1812.	N°. 1. — DR.		Bolls.	Loads	Yokings.			
Sept.19.	To cash					L.	8	11	0
1813.	To working stock	at 6s. 6d.			23		7	9	6
Jan. 30.	To cash						2	15	1½
	To working stock	at 6s. 6d.			117		38	0	6
May 10.	To cash for rent, crop 1812	L.60 0 0							
	for Income tax at 5 p. cent.	3 0 0							
							63	0	0
	To No. 6.	at 41s.	25				51	5	0
	To working stock	at 6s. 6d.			77		25	0	6
	To profit and loss—Gain						444	18	4½
			25		217	L.	641	0	0

1813.	Bolls thrashed.	CONTRA — CR.		Acres.	Bolls.			
Jan. 30.	20	By cash for wheat	at 2l. 14s.		60	L.	162	0	0
	120	By No. 2.	at 3l.		18		54	0	0
	81	By working stock	at 9l.	2			18	0	0
		By feeding stock	at 9l.	1			9	0	0
May 10.		By cash	at 40s.		22½		45	0	0
		By No. 4.	at 40s.		16		32	0	0
		By feeding stock	at 9l.	1			9	0	0
		By balance wheat on hand	at 60s.		104		312	0	0
	221			4	220½	L.	641	0	0

1812.	No. 2. — — DR.		Bolls.	Loads	Yokings.			
Sept.19.	To cash, draining					L.	12	16	8
	To working stock	at 5s.		70			17	10	0
	To feeding stock	at 5s.		210			52	10	0
1813.	To working stock	at 6s. 6d.			420		136	10	0
Jan. 30.	To No. 1.	at 3l.	18				54	0	0
	To cash for lime, 600 bolls,	at 5s.					150	0	0
	To working stock	at 6s. 6d.			30		9	15	0
May 10.	To cash, rent, crop 1812	L.55 0 0							
	Income tax at 5 p. cent.	2 15 0							
							57	15	0
			18	280	450	L.	490	16	8

CONTRA —	—	CR.			
By profit and loss—Loss		L.	490	16	8
		L.	490	16	8

1813.	No. 3. —	— DR.	Bolls.	Loads	Yokings.			
Jan. 30.	To cash	- - -				L.	10	0	0
	To working stock	- - at 5s.		17			4	5	0
	To feeding stock	- - at 5s.		53			13	5	0
	To working stock	- at 6s. 6d.			132		42	18	0
	To No. 6. seed potatoes	-					2	5	0
May 10.	To cash, rent 1812	- L.47 10 0							
	Income tax at 5 p. cent.	2 7 6							
							49	17	6
	To working stock	- - at 5s.		14			3	10	0
	To feeding stock	- - at 5s.		42			10	10	0
	To working stock	- - at 6s. 6d.			70		22	15	0
	To profit and loss—Profit	- -					52	19	6
				126	202	L.	212	5	0

1813.	Bolls thrashed.	CONTRA —	CR.	Acres.	Bolls.			
Jan. 30.	18	By cash	- - at 30s.		10	L.	15	0	0
	100	By working stock	- - at 30s.		92½		138	15	0
		By household	- - - at 30s.		15		22	10	0
		By feeding stock	- at 9l.	4			36	0	0
	118			4	117½	L.	212	5	0

1812.	No. 4. —	DR.	Bolls.	Loads	Yokings.			
Sept. 19.	To cash	- - -				L.	3	2	0
	To working stock	- at 6s. 6d.			20		6	10	0
May 10.	To cash, rent, crop 1812	L. 31 10 0							
	Income tax at 5 p. cent.	1 11 6							
							33	1	6
	To No. 1,	- - at 40s.	16				32	0	0
	To working stock	- at 6s. 6d.			58		18	17	0
	To profit and loss—Profit	- -					32	9	6
			16		78	L.	126	0	0

1813.	Bolls thrashed.	CONTRA —	CR.	Acres.	Bolls.			
Jan. 30.		By working stock	- - at 9l.	12½		L.	112	10	0
		By feeding stock	- - at 9l.	1½			13	10	0
				14		L.	126	0	0

1812.	No. 5. —	DR.	Bolls.	Loads	Yokings.			
Sept. 19.	To cash, grass seeds	- -				L.	15	7	6
1813.									
Jan. 30.	To ditto	- - -					9	4	9
	To working stock	- at 6s. 6d.			38		12	7	0
May 10.	To cash, rent, crop 1812	L. 40 0 0							
	Income tax at 5 p. cent.	2 0 0							
							42	0	0
	To working stock	- at 6s. 6d.			4		1	6	0
	To profit and loss—Profit	- -					136	17	9
					42	L.	217	3	0

1813.	Bolls thrashed.	CONTRA —	CR.	Acres	Bolls.			
Jan. 30.	61	By cash for barley	- - at 41s.		44	L.	90	4	0
	35½	By household	- - at 41s.		2		4	2	0
		By feeding stock	- at 9l.	2			18	0	0
May 10.		By No. 6.	- - - at 42s.		12		25	4	0
		By working stock	- - at 9l.	0½			4	10	0
		By feeding stock	- - at 9l.	0½			6	15	0
		By balance oats on hand	- at 36s.		38		68	8	0
	96½			3½	96	L.	217	3	0

1812.	No. 6. —	DR.	Bolls.	Loads	Yokings.	
Sept. 19.	To cash					L. 4 3 6
	To working stock	at 5s.		17		4 5 0
	To feeding stock	at 5s.		53		13 5 0
1813.	To working stock	at 6s. 6d.			50	16 5 0
Jan. 30.	To cash					2 5 9
	To working stock	at 6s. 6d.			43	13 19 6
May 10.	To cash, rent, crop 1812	L.30 0 0				
	Income tax at 5 p. cent.	1 10 0				
						31 10 0
	To No. 5.	at 42s.	12			25 4 0
	To working stock	at 5s.		15		3 15 0
	To feeding stock	at 5s.		35		8 15 0
	To working stock	at 6s. 6d.			63	20 9 6
	To profit and loss—Profit					20 14 9
			12	120	156	L.164 12 0

1813.	No. 7. —	DR.	Bolls.	Loads	Yokings.	
May 10.	To cash, rent 1812	L.16 0 0				
	Income tax at 5 p. cent.	0 16 0				
						L. 16 16 0
	To cash for seed oats	at 31s.	15			23 5 0
	To working stock	at 6s. 6d.			67	21 15 6
			15		67	L. 61 16 6

1813.	HOUSEHOLD — —	DR.
Jan. 30.	To No. 3.	L. 22 10 0
	To No. 5.	4 2 0
	To No. 6.	20 5 0
May 10.	To cash	41 3 0
		L. 88 0 0

	A. B. — —	DR.
	To balance due him	L. 100 0 0

	PROFIT AND LOSS — —	DR.
	To No. 2.	L. 490 16 8
	To No. 7.	30 6 6
	To household	88 0 0
	To capital, neat gain, after paying household, &c.	78 16 8½
		L. 687 19 10½

	BALANCE — —	DR.
	To cash in hand	L. 170 12 2½
	To working stock, valued at	447 1 0
	To feeding stock, valued at	174 15 0
	To No. 1. wheat in hand at market price	312 0 0
	To No. 5. oats in hand	68 8 0
		L. 1172 16 2½

1813.	Bolls thrashed.	CONTRA —	CR.	Acres.	Bolls.	
Jan. 30.	32	By working stock	at 9l.	2½		L. 22 10 0
		By household	at 9l.	2½		20 5 0
		By No. 3.	at 9l.	0½		2 5 0
		By feeding stock	at 9l.	6		54 0 0
May 9.		By No. 1.	at 41s.		25	51 5 0
		By working stock	at 41s.		7	14 7 0
	32			11	32	L. 164 12 0

1813.	Bolls thrashed.	CONTRA —	CR.	Acres.	Bolls.	
Jan. 30.		By feeding stock	at 9l.	3½		L. 31 10 0
		By profit and loss—Loss				30 6 6
				3½		L. 61 16 6

	CONTRA — —	CR.
	By profit and loss—Loss	88 0 0
		L. 88 0 0

1812.	CONTRA — —	CR.
May 16.	By Capital	L. 100 0 0

	CONTRA — —	CR.
	By No. 1.	L. 444 18 4½
	By No. 3.	52 19 6
	By No. 4.	32 9 6
	By No. 5.	136 17 9
	By No. 6.	20 14 9
		L. 687 19 10½

	CONTRA — —	CR.
	By A. B. due to him	L. 100 0 0
	By Capital, neat worth	1072 16 2½
		L. 1172 16 2½

In Balance Account, the main object of which is to afford the means of checking the Ledger, and detecting errors, all the different articles of capital are collected, previous to their being carried to Capital, or a new Inventory. If the concern is still to go on, the inventory for next year would proceed thus—

Inventory taken 10th May, 1813.

Cash in hand - - -	L. 170	12	2½
Working stock, viz.			
3 pair horses, &c. &c. - -	447	1	0
Feeding stock, viz.			
6 cows, &c. &c. - -	174	15	0
No. 1. Wheat in hand - - -	312	0	0
No. 5. Oats in hand - - -	68	8	0
	L. 1172	16	2½
I owe A. B. borrowed of him, interest unpaid,	100	0	0

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

SIMPLICITAS *on Manure.*

SIR,

As I know of no subject of such importance to the general interests of agriculture, as a wide diffusion of the best methods of collecting, increasing, and managing manure, I presume to engage with the subject, in the sincere hope, that a fervent wish for the success of those objects will be kindly admitted as an excuse for redundancy; and that the importance of the subject will tend to palliate the fervency of the Essayist.

Before proceeding farther, I mean to deprecate all objections on the ground of the extraordinary trouble attendant on the operations. Undertakings accomplished with little trouble, are generally productive of as little advantage; and the objection of any operation being too troublesome to engage with, sounds like a schoolmaster saying, that the improvement of his pupils' minds is so toilsome and laborious, that he will rather allow them to remain in ignorance, than encounter the application and fatigue of their teaching.

All that I contend for, and I contend with the confidence of victory, is, that the advantages derived will be found more than commensurate to the trouble required.

In the view we can now take of the population of the island, which, from 1801 to 1811, a period of ten years, has increased 1,614,882; and when we know that the total amount of the waste lands in Britain is, by the last Report of the Committee of Agriculture, 22,107,101 acres, we are entitled, especially when we reflect upon the * importations of grain, to look forward to an annual decrease of these 22 millions of acres; that is, a war being waged against them by an augmentation of our manuring sources, and part of them being every year added to the cultivated lands of the kingdom.

We may even indulge so far as to contemplate the approximation of the art of agriculture to that of gardening, and to hail the gradual approach of husbandry to the utmost crisis of human perfection. With these views before us, of how much consequence is the whole management and economy of manures!

The direct operation of dung upon land may be inferred from seeing that rich dung, after lying 12 or 18 months in the dung-hill, gets into the nature of a fat or slimy substance, which, by mixture with sand or gravel, must, to a certain extent, impart the glutinous qualities which it possesses, and thereby assimilate the poorest sand or gravel to the nature of rich vegetable mould.

Dung itself, after being kept a sufficient length of time, resolves itself, by entire putrefaction, into the true vegetable mould; the characters of which are, that it does not dissolve in acids; is uncommonly fine and divisible in its particles; and, when distilled, yields volatile alkali, and a fetid or offensive oil,

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* The importations, for the last twelve years preceding 1810, of grain, corn, meal and flour, of all sorts, into Great Britain, were 17,004,031 quarters; giving an annual average of 1,417,003 quarters.

And of wheat alone, for the twelve years preceding 1810, the importations were 8,327,579 quarters; or 693,963 quarters per annum.

This 1,417,003 quarters, at the average value of 3*l.* per quarter over head, is 4,251,009*l.* Sterling per annum for victual imported.

Thus, 4,251,009*l.* Sterling worth of victual is imported annually, upon an average, by an island which contains within itself 22,107,101 acres of waste lands; the proportions of which are,

England	6,259,470	
Wales	1,629,507	
Scotland	14,218,124	
Britain	22,107,101	Acres

similar to what is obtained from the distillation of corrupt animal and vegetable substances.

It has been stated, that no farm can raise a quantity of dung that is more than sufficient to cover one-fifth of its surface with manure: hence arises the necessity of increasing and augmenting this given quantity, by every means which experience tells us are effectual, or which human ingenuity, in its ardent pursuit of utility and of truth, is able to devise. Hence arises the immense and incalculable advantage of compound manure, or what is generally understood in Scotland by compost middens, which may be called the manufacture of manure, or the method of making, by art, what was formerly understood to be only accomplished by the operations of nature.

By the mixture of earth or other substances with farm-yard dung, the juices which would otherways exude and run off, become absorbed by the earth, which, like a sponge, imbibes the moisture, and returns it to the soil.

The ingredients for compost manure are farm-yard dung, earth, lime, weeds, ashes, soot, sea-weeds or alga marina, marl, leaves, haulm of peas or beans, straw, heath, prunings of hedges, saw-dust, refuse of flax, moss, animal exuviæ or blood, offals of fish, the carcases of horses, dogs, &c. sweepings of mills, shavings of horns, broken or ground bones, offals of tan yards, soapers' ashes, refuse of whale blubber, or other adventitious substances; and I am inclined to think that none of these articles (not even excepting farm-yard dung) can singly, or by itself, be applied to land with the utmost possible advantage to the farmer; for, by mixture with other substances, besides increasing the quantity, it imparts and receives qualities which would not otherwise go to the soil.

I shall suppose only one cubic yard of the best farm-yard dung, valued at 6s., to be carefully mixed with two of earth, or the cleanings of ditches, which will make three cubic yards; and assume the value of the compound to be only 3s. per yard, or 9s., which is an increase of 50 per cent.

At this rate, 334 yards of the best dung is valued at 6s., or - - - - - - - -	L.100	4	0
And 1002 yards of compost will, at only 3s., be	150	6	0

The writer of this article had occasion to see a field of early barley, the one half of which was dunged with common farm-yard dung, and the other half manured with compost of earth, ashes and dung, very well mixed together: The crop of the latter half was much more strong, luxuriant, and productive, than what was manured with the farm-yard dung alone.

Indeed, I anticipate the time when manure will only be dis-

tributed in the shape of compost; and to all who have the good fortune to have farms within the reach of public post-roads, would most strenuously recommend the collecting the rakings or gatherings, for the various purposes of compost: These cleanings of roads, or thoroughfares, contain more vegetable matter, which is the spirit of manure, than most people are apt to imagine.

In some counties of England, the children of the poor make a kind of livelihood, by carefully gathering on the roads the dung that drops from the horses and cattle in passing, and this they sell at 4d. a barrowful: This industry is even now to be seen in Scotland: And, that they are thus more laudably employed than in standing idle, gazing at every one that passes them, breaking down the fences of the farm, or doing other mischief, it is believed no one will dispute.

In the midst of summer, or in dry frost, it is apparent the quantity of animal dung that falls upon a road much frequented, which is intimately mixed with the cleanings that are driven off.

The practice most adviseable, I think, is the following.—Let a quantity of the kind of lime called Dreg be driven, which can be purchased at some limekilns at 10d. per boll; * and being well watered, after making the bottom of the compost of road cleanings, or scourings of ditches, about 9 inches thick, two women or labourers, with common riddles filled with the slack'd dreg, should, by shaking the riddles, sift it on the surface, beginning at the one end, and so on to the other, until the surface is completely whitened with the fine powder; and the pieces of shells that remain in the riddle should be collected in a heap for reslacking; after which, a layer of farm-yard dung should be spread; then a layer of earth or road cleanings, six inches deep; and so on alternately: Intermediate layers of weeds, old thatch, sea weeds, or other such substances as may be within the reach of the proprietor, will be useful additions to this compound; which, after having lain six weeks or two months, should be turned over from the one end to the other, taking care to lay it down as loose as possible, and not more than 4 or 4½ feet high, the more speedily to effect the heating, or encourage the tendency to fermentation in the mass.

It cannot be too much applauded, what has been often recom-

* When the price of lime shells is 2s. per boll, the shells contain from 95 to 96 per cent., and what is called Dreg about 78 per cent. of pure lime. This corresponds to the limekilns of John and George Dickson, Cousland, 7 miles east from Edinburgh.

mended, viz. the practice of lining the dung court with earth at that season when it is most empty of dung, and allowing the fresh dung to be laid down, and the exuviæ or urine to run upon it.

Nor can this principle of absorption be carried too far. I have seen the surface of a stable yard regularly covered every fortnight with earth; and, besides the richness which the earth imbibes from the dung, the dung, by the coolness of the earth, is prevented from firefanging. *(See Sir John Sinclair's Husbandry, Addenda, 8.)*

However tedious or puerile the detail of these processes may appear to some, it will be generally allowed, that the best methods of preparation and procuring manure, constitute the very foundation and key of good husbandry.

It was the saying of an eminent judge of Rural Economy, that when he was requested to give a report upon any farm, the first thing he did was to examine the resources and management of the tenant's manure: Indeed the connexion between manure and crop he conceived to be direct and immediate; and the more it is examined into, this opinion will be found to be confirmed by the most extensive experience.

It is well known that the celebrated Lord Kames long sought after a concentrated essence of manure, or the fertile principle reduced to a body that would carry in his snuffbox; but the discernment of that honest farmer was not to be despised, who informed his Lordship that if his dunghill did not exceed the bounds of his snuffmill, his pocket might then become the substitute for his barn-yard.

How long manure should be kept with the most advantage to the land, comes to be a question of considerable importance, and not perhaps yet satisfactorily determined.

I have seen animal dung kept by some until it was reduced to one-third of its original bulk: in this case, I should suppose that it lost more than one half of its strength. I have even seen it kept till reduced to the state of rich earth, when there was no doubt that 60 or 80 per cent. of its strength was washed away by the rains, and dissipated by evaporation or other means no ways profitable to the proprietor.

A small field of ground, near a town, was lately ploughed up, from which, being nothing but sharp sand, little or no crop was expected; but it had been the seat of a number of dunghills for a great length of years, and notwithstanding the arid and sandy appearance which it exhibited, most extraordinary crops were raised upon it for three years successively, without any manure whatever; which could only be accounted for by the

ground, or rather sand, having imbibed the juices of the manures which had so long and so often lain upon it.

I am inclined to think that all substances have a tendency to part with their spirit or acid after a given time; in fact, that all inert substances do lose their characteristic principle by keeping; and, after the utmost consideration, think the sooner manure is applied to the land, the more effectually will it communicate that principle in its native strength.

But if even dung did not lose its strength by keeping so much as is contended, it must still be insisted, that in all such porous substances as dunghills are made up of, moisture falls to the bottom, and thereby carries off those valuable particles, which would be appropriated by a more immediate application of the manure.

I view the soil as a kind of natural drain or sieve, through which all the substances which are artificially applied to promote its fertility, after losing their cohesion, gradually filter and lose those fine and fecund particles which sink as it were into a greater depth, and leave nought behind them but the gross and indissoluble residue at or near the surface. This is most evident upon sandy soils, where, after lying vacant for the winter, an accumulation of poor sand will be observed upon the surface; the finer particles, or what is called vegetable mould, having subsided or filtered from the surface during the rains or melted snows of winter. It is upon this principle that the great fertility may be accounted for which always follows the trenching or turning up of deep soils which have lain beneath the reach of spade or plough for a length of time, and have thereby received part of the deposite which the upper soil has lost.

Hence the necessity of excrementitious manure being combined with alluvial or other earth, in order to retain the substance or strength of the former, which would otherwise sink and be lost to the ensuing crop.

That substances much less subtile than the finer parts of manure have a tendency to sink into the earth on which they happen to be placed, there is no longer any room for doubt. Shells have been found at the depth of 10, 15, and 20 feet below the surface of the ground, where they never could have been buried; and from the strata near them, there is no probability of their having been brought there by their natural element the sea.

Dr Coventry, Professor of Agriculture in the University of Edinburgh, in speaking of fossil manures, relates an instance of shells having been laid on links or downs in the neighbourhood of the sea, which in the course of a few years were observed to have entirely disappeared from the surface; in ten

years they were found to be four inches deep; and, latterly, had entirely subsided beneath the reach of the plough.

Lime is likewise found to subside in the soils on which it is laid.

Much has been said of seaware as applicable to barley crops. That good crops have been reaped in many instances where seaware has been applied, there is abundant proof; but that it contains a very small portion of putrescent manure, and almost no vegetable earth, is known to every one who has had an opportunity of examining its effects.

It is believed to be the opinion of those who have full experience of seaware, along the rich chain of coastside farms, that its effects, such as they are, are immediate, that is, are little known, if any thing, the second year.

Perhaps it may be said, with little inaccuracy, that applications of it yield their strength wholly the first year; while the effects of dung and excrementitious manures, by their fertilizing, and I had almost said magical operation, are protracted to four, five, or six years. But to the limited experience, which in the present instance is alluded to, it is but candour to state that the greater that has been the proportion of farm-yard dung, and the smaller that of seaware, the more healthy and the more abundant have the crops been.

As to the distance that putrescent manure should be driven, consistent with profit to the agriculturist; if *ever* it is the interest of the operative farmer to drive it *ten miles*, unless he can purchase it at a price below 6s. per cubic yard, and by the moderation of the price indemnify himself for the length of the carriage, it will surely not be profitable for him to send his carts beyond that distance.

Dung drove from five to eight miles, will cost the farmer—say a double-horse cart containing 1½ cubic yards, at 4s. per yard, - - - - - - - £. 0 6 0

Labour of two horses driving ditto from five to eight miles, at 3s. per horse, - - - - 0 6 0

1½ cubic yards at 8s. - £. 0 12 0

So that every cubic yard of dung, drove from five to eight miles, will cost the farmer at least 8s. besides the wages of the driver.

All extraordinary distances which manure may be conveyed by men of fortune, are only to be considered as proofs of the indispensable use of manure in promoting extraordinary fertility, and to be noted as examples of what can be done when wealth and refinement assume agriculture as an amusement.

In every farm-yard there is a proportion of hot and pungent dung, such as comes from swine, fowls, geese, pigeons, &c. which it is of some consequence to separate into small portions, and scatter upon the dunghill, as the heat that arises from its fermentation, is much greater than that of common dung, and thereby tends to hasten the decomposition of the general mass.

After repeated trials, when the temperature of the air was 40 degrees of Fahrenheit's thermometer, that of

Common farm-yard dung was often 70 degrees,
Compost of lime, dung, and earth 55,
A portion of swine and fowls' dung 85.

On the subject of top-dressings, it is necessary only to state the opinion, that wherever rich and nourishing permanent pasture is required, it will never be procured in a verdant and luxuriant state by any other means, than by a skilful, industrious, and universal application of top-dressings. Of all methods of applying manure, none affords such an immediate and fostering nourishment to the plants as this: it goes immediately to their roots, and serves the purpose both of a sort of hoeing, and of a manuring in the most effectual way.

In gardening, it is getting very common to lay rich manure at the roots of fruit trees and gooseberry bushes; and where they are properly checked by pruning exuberant wood, it is almost never without effect; and this is nothing else than another shape of top-dressing to a permanent crop.

Top-dressings to any extent, may be obtained by the mixture of lime and earth, without encroaching much on the stock of dung, although a certain portion of it is not only desirable, but will never be applied with more profit. Indeed, in the warm and strenuous recommendation which was intended of this method of manuring, I rejoice to say that I am completely anticipated by a paper in the last Number, signed A. S. (No. 53. p. 72.) which I recommend to the attention of your readers.—An application of soot to young grass has been found to be extraordinarily productive; and it is believed, that applications of this article will amply repay those who engage with the trouble and nicety of its application, which is by no means so inconvenient as would be supposed. The mode of management is as follows: The soot is contracted for with the sweeps or sootymen at 1s. 6d. per boll, wheat measure; it is sown on the braird of the crop with which the grass is sown, and is done by the bags filled with soot being put upon a cart, which is taken to the side of the field to which the wind blows: A man dressed in any old or useless clothes, sows it from the bags, as you have a larger or smaller quantity to apply; and another leads the horse and

cart against the wind, which has the effect of scattering it equally, while none of it is blown about the persons employed in the task. Where this is managed with care, the expense of purchasing and sowing the soot will be largely repaid by a heavy and abundant crop of clover. The quantity that should be used, is about 12 bolls per acre. This method of manuring, it is believed, will increase in practice in a few years so much, that soot will become a valuable article, and in great repute. Although it must be observed, that applications of soot are immediate in their effect—that effect does not extend beyond the first year of the grass.

In a research after several varieties of extraneous manures, it is proper to mention the trial that has been made, on a pretty large scale, of one which seldom comes within the reach of any one to apply to the extent to which it has been done; that is, human soil.

A respectable farmer had the dung of certain barracks taken, which principally consisted of human excrement, and a small quantity of straw. At first, he found great difficulty in reconciling his servants to the disagreeable consequences of working at it; but by large allowances of whisky, they became at last more accustomed to it.

Being desirous of trying its effects in different proportions, it was applied by itself upon a small field which was sown with barley; the vegetation was violent and unnatural, and the barley ran entirely to straw; so that the effect of the manure, in this instance, was worse than nothing.

The remainder of it was mixed up into a compost with earth brought from the head lands of several fields, in the proportion of five carts of earth to one of the soil; great pains were taken that they should be thoroughly mixed and incorporated together; this was laid on a field of twelve acres, intended for spring wheat, at the rate of forty double-horse carts per acre; it was accordingly sown as intended, and afterwards with grass seeds. The wheat was uncommonly strong, very luxuriant in the straw, and yielded a crop of eleven and a half bolls per acre. The crop of clover and ryegrass, the following summer, was likewise *uncommonly* strong and luxuriant.

Another kind of manure little made use of, and perhaps as little deserving of it, is saw-dust; it is very slow and very ineffectual in its operation, except when mixed with blood, the offals of slaughter-houses, or animal dung having an over quantity of moisture in it; it serves to quality these substances, and their moisture secures its decomposition:—If fresh, it will not be worth the carriage; if rotten, it may do some good:—But

any effect directly from it should not be counted upon, sooner than in two or three years. But the power of vegetable earth, as a solvent of this and many such other substances, and that not in a great length of time, cannot be doubted, when an instance is related by the Professor of Agriculture at Edinburgh, of a marble statue, after being a number of years in the ground, having wasted away, and partly disappeared,—supposed by the action of the vegetable matter in the ground.

Small portions of wood will be found not to be completely consumed, until they have been eight years under ground.

It remains to say something as to the weights of manures, or such substances as constitute them.

The weights of manures will depend much upon the progress of decomposition at the time, as well as the proportion of moisture which, from accident or particular treatment, may be in the manure; this moisture varies from 6-12ths to 8-12ths of the whole weight of the manure. The means made use of in examining the weights of manures were the following, which may be examined and checked by any one who has the curiosity.—A wooden box was made, whose dimensions were 12 inches every way in the inside, so that filled with garden mould, it contained exactly one cubical foot, or the 27th part of a cubic yard, the exact weight of which was three quarters of a hundred weight, five pounds, four ounces avoirdupois; deduct the weight of the box, which was six pounds six ounces; leaves two quarters, twenty-six pounds, fourteen ounces as the avoirdupois weight of the cubic foot of garden mould, so that the cubic yard is 19 cwt. 3 qrs. 25 lib. 10 oz. The weight of a cubical yard of the following substances are as under.

Avoirdupois.

	Cwt.	*qrs.*	*lib.*	*oz.*
A cubical yard of garden mould -	19	3	25	10
Ditto of water - -	15	0	7	8
Ditto compost of earth, weeds, lime and dung, that had lain nine months, and been turned over -	14	0	5	2
Ditto of new dung - -	9	3	18	6
Ditto of leaves and sea-weeds -	9	0	7	14

Thus, a cubic yard of water weighs 15 cwt. 7 lib. 8 oz. avoirdupois; so that the weight of water is to that of garden mould, nearly as 3 is to 4; and water is to new dung, nearly as 3 is to 2.

I conclude in the words of Mr Brown of Markle, a man who, to the experience of the farmer, unites the information of the

gentleman. ‘ Manure is of the first importance to the farmer; ‘ and, according to the quantity which he collects, and the judg- ‘ ment which guides the appropriation, his success will assured- ‘ ly be regulated.’ I am respectfully, Sir, your most obedient

SIMPLICITAS.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Rules for Ascertaining the Age of Horses, by Inspection of their Teeth.

SIR,

THERE is no part of a farmer's stock which has now become more expensive, and in which greater losses are sustained, than that of horses. Besides their numerous, and often fatal diseases, which urgently demand the care of well-educated and experienced practitioners in the veterinary art, as has been noticed in a former Number of your Magazine, the farmer, as well as every purchaser of horses, is often imposed upon with regard to their age, which, it is very absurdly believed by many, is only to be ascertained by those whose interest too often leads them to practise imposition, and to support, with a very knowing and important air, this imaginary difficulty. In truth, this knowledge is artfully made to appear as something mystical, and never taught. The air assumed by the agent, is well pourtrayed in Rembrandt's picture of the Astrologer; and their actions and motives are very similar. Though I do not mean to deny that there are many exceptions; yet I think the experience of most farmers will authorize me to say, that dealers are little to be trusted respecting the age of horses. Indeed, you shall very seldom find any of their horses above six years old, if there are the least remains of the natural marks in their teeth, or if ingenuity can substitute them by artificial means. This is often done by means of an iron instrument, made red hot, and applied to that part of the teeth in which the specks should appear, with a considerable pressure. It has the desired effect; but it is not permanent; and is therefore only resorted to in desperate cases. But no sooner is the horse transferred to the purchaser, than he often becomes older, perhaps, by two or three years; much in the same way that marriage has been said to have sometimes effected a corresponding addition to the stationary age of the antiquated maid and withered bachelor.

In my younger days I was, like many others, a sufferer from my own ignorance, and the trick of dealers; and shall now of-

fer a few remarks, with a view to assist such of your readers as may be at a loss to know the age of horses, by inspection of their teeth, which is the best method of judging of it; beginning with the foal-teeth, and noticing the progressive changes, until the age can be no longer ascertained with any degree of certainty.

In horses, the teeth are 40 in number; and in mares, not barren, commonly 36, because the latter seldom have tusks. These teeth are of three kinds;—the gatherers or incisors—the tusks—and the grinders. The first are subdivided into two centre or fore-teeth; two middle, one on each side of the former; and two corner teeth, one on each side of the latter; so that each jaw has six of these, with two tusks and twelve grinders. At the root of each tooth is a hole, through which are conveyed an artery, a vein, and a nerve, for its nourishment.

When the foal is 10 or 12 days old, four front teeth appear, two in the upper, and two in the under jaw. In a month or six weeks after, the middle teeth follow; and the corner teeth about three or four months afterwards.

These foal-teeth continue in this state till the horse is from $2\frac{1}{2}$ to 3 years old; when the first four, or centre teeth, are shed, and replaced by others, called horse-teeth. At $3\frac{1}{2}$, or 4 years, the middle teeth; and at $4\frac{1}{2}$, or 5 years, the corner teeth, are also cast. Until a horse is full 5 years of age, there is only the exterior shell of the new corner teeth visible, with flesh within. Between $5\frac{1}{2}$ and 6, the *inner* edge of these teeth grow up to a level with the *outer* edge, which is furrowed irregularly, still being hollow, and becoming stronger and thicker. At this age, the hollow of the centre teeth has disappeared, and that of the middle ones is half worn out.

The corner teeth remain nearly in this state till the age of $7\frac{1}{2}$ or 8 years; though a change sometimes begins at 7. The corner, as well as the other teeth, then become full, leaving only a brown speck (vulgarly called the *bean*) at the top; which in some horses, and particularly in mares, continues for several years longer: The furrows are also effaced, the gums retire, and the tooth appears longer. At 8 years complete, the marks in the teeth of the under jaw have disappeared in most cases; but we may still consult the upper jaw, the bean in the front teeth of which begins to wear out at 9 years; that of the middle teeth at $9\frac{1}{2}$, and that of the corner teeth from that age till 10; after which no mark is visible.

A knowledge of the age may be acquired from all these teeth; but we ought principally to attend to the corner teeth, and to the tusks of the under jaw. The tusks appear at $4\frac{1}{2}$, often at

5, and rarely at 3½. At 5½, they are sharp at the point, and channelled or fluted in the inside. If the tusks are not very long, are sharp at the top, and have a cavity or fluted inside, the horse is not very old. This flute, ridge, or cavity, has yet eluded the devices of dealers to imitate, and is easily felt with the forefinger of the right hand. When a horse is very old, the teeth jut outwards, are long, and of a yellow colour; the eye-lashes are white, and the nether jaw bone has become sharp.

There have long been complaints of the London dealers (and the practice has lately travelled northwards) contriving to pass their horses for a year older, by pulling out the corner foal teeth. But the most common device of our dealers is, to make their horses appear a year or two younger than they really are; which is perhaps a still more reprehensible practice.

Annexed is a recapitulation of the foregoing Narrative, in which the appearance of the Teeth, at the different periods of a Horse's Age, is brought into one view.

STATE OF THE TEETH AT VARIOUS AGES.

At from 2½ *to* 3 *years old*—A horse sheds, in both rows, the two centre teeth. He is then said to be a three-year old.

At 3½ *to* 4 *years*—He loses other four teeth, one on each side of those he lost the preceding year, both in the upper and under jaw, having the four outside or corner teeth remaining. He is now called a four-year old.

At 4½ *to* 5 *years*—The four corner foal teeth are cast, and then he passes for a five-year old. There yet appears but the shell of the new teeth with flesh inside. At full 5, the flesh disappears, and the corner teeth become complete shells, hollow within. The tusks have now pierced the gum, and their sharp points may be felt by the finger.

At 5½ *to* 6 *years*—The tusks become of a moderate size, sharp, the inside fluted, and the edge next the gatherers thin. He is now called 6; which is the most valuable age. The hollow of the centre and middle teeth is nearly filled up; but that of the corner teeth still remains; and the latter have grown up, so that the inner edge is level with the outer or front.

At 6 *to* 8 *years*.—All the gatherers are now full, having only a brown speck on the top. The corner teeth have become much thicker, and the tusks longer. But as the speck remains with many horses for several years after, a person who is not a judge will be told, the horse is not more than six years old.

At 8 *to* 10 *years and upwards*.—At 8, the bean being generally

worn out from the teeth of the under jaw, the upper jaw may be examined. At 9, the speck of the centre, or front teeth; at $9\frac{1}{2}$, that of the middle; and at 10, the speck of the corner teeth is effaced. Then the horse is said to be aged, and to have lost all mark. The age can no longer be distinctly known by the teeth; but a probable conjecture, from the circumstances before mentioned, and particularly from the tusks, may be formed.

Permit me to add, that an Engraving would, in my opinion, be highly useful to many of your readers; and if you desire it, a Drawing, carefully executed under the direction of a Gentleman well acquainted with the Natural History of Horses, shall be sent you for that purpose. I am, &c.

Edinburgh, April, 1813. F. J.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Remarks on Mr Findlater's Communication on the Advantages of Working Oxen, No. LIII. p. 39.

SIR,

IN your Magazine for February, Mr Findlater, of the Manse of Newlands, has inserted a paper 'on the Advantages of Oxen Ploughs;' in which Mr F. gives an account of the food consumed by a pair of horses and a pair of oxen, according to the attentive observation of the overseer of Sir Thomas Carmichael of Skirling; by which it appears, that the difference in favour of a pair of oxen is 14*l.* 16s. for food, increase of value 11*l.* 15s., saving in shoeing 1*l.*; in all, 27*l.* 11s. annually in favour of oxen. As Sir Thomas's overseer asserts that the oxen did as much work as the horses with which the above comparison of expense was made, I will grant that it might be the case; but I desire that Mr Findlater will, through the medium of your Magazine, inform the public, what particular breed Sir Thomas's oxen are, and likewise the breed of his horses; for, without this knowledge, it would be unfair to assert that the statement of Sir Thomas's overseer was incorrect, as it is not impossible that his breed of oxen may as far exceed the other breeds (which have at different periods been used for the draught) in hardiness of constitution and ability to live on coarse food and in small quantities, as the black-faced Highlander does the Leicester, or the camel a short-horned bullock. If Mr Findlater will advise Sir Thomas to allow his overseer to set out the quantity of land which is commonly cultivated by a pair of horses, and set a pair of oxen to work it, and to do the

same for a pair of horses, to begin working at Mayday 1813, and to finish at Mayday 1814, and publish the details in your Magazine for the next ensuing quarter, with an accurate statement of the weight of oats eaten by each, the weight of straw, hay and turnips, the weight of clover, tares, &c. cut and ate in the house, leaving nothing to be taken by rough guess:—It will be doing a great public benefit; and would, I think, set the question at rest.

I thall now proceed to point out what I think erroneous in Mr Findlater's comparative statement. An acre of turnips at 4*l.* must be either a very bad crop, or turnips must be of less value on Sir Thomas's farm than in the adjoining neighbourhood. As Mr Findlater has valued the oats at market price, the turnips should have been so likewise. Could Mr Findlater not let those turnips for more than 4*l.*? The criterion of their value is not what he can afford them at, but what other farmers will give for them. This very article of food, I suspect, if fairly valued, will be equal to the annual increasing value of a pair of worked oxen, which is stated at 3*l.* 15s. I likewise observe that Sir Thomas's oxen were bought at three years old, for 36*l.* the pair. A pair of horses are certainly as able to work as oxen, at the same age; and such horses can be bought very easily for 70*l.* the pair; and, after working five years, instead of being of less value, are daily selling, at that age (8 years), from 90*l.* to 100*l.* and upwards the pair; and this I will maintain they would sell for in any market, if they only did the work of any breed of oxen on Tweedside; and the practice is so common for eight-year old horses to sell for more money than at three years old, that every practical farmer must scout the idea of the annual deterioration of 8*l.* Hoping Mr Findlater will consider the fairness of the above statement, and endeavour to promote a further trial on the plan I propose,

I am, Sir, your, &c.

B. C——

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Origin of Potatoe Oats.

Sir,

It is not a little surprising, that a correct account is yet wanting of the discoverer and cultivator of this variety of oats, which has been productive of greater advantages to the agriculturists of the northern parts of these kingdoms, than all the improvements introduced by our most eminent breeders. How

disinterested is the conduct of the one, when contrasted with the almost exclusive monopoly of the other! What an incalculable loss would have been sustained by the community and individuals, had the first introducer of this variety of oats confined its culture to his own family and friends, restricting the millers from the disposal of any part of what they purchased to their neighbours, by an unvarying injunction that they should convert the whole into meal! The following are the only passages in your valuable miscellany, where I have met with an account of the origin of the Potato Oats. The first is merely *conjectural;* the second wholly *unfounded;* and perhaps a more striking instance of the necessity of not implicitly crediting the statement of anonymous writers, does not occur in the whole of your Magazine. Farmer's Magazine, vol. VI. p. 450. 'Had 'not the Potato Oat been introduced a few years ago, Scot-'land stood a great chance of being as badly supplied with oats 'as our sister country, where a sample of good quality is rare-'ly to be got, except of the Polish or Barley-corn variety. 'The origin of these oats *cannot* be *satisfactorily* traced; but I 'have often thought they were derived from the variety called 'Early Essex, or at least selected from some principal stalks of 'that variety.' The Complete English Farmer, published in 1771, a work of very considerable merit, written by a friend of the great Tull, describes the Essex Oat in the following terms. 'Of all the kinds of oats that I have seen, the Essex, in my 'estimation, is the best. It is a fine, *clear skinned* oat, of an 'elegant shape, and, when it meets with a soil it likes, *plump*, 'and *full* of *meal*.' The following account, wholly *false* and *unfounded*, occurs in the Farmer's Magazine, vol. IV. p. 57. 'Concerning the origin of Potato Oats, my correspondent says 'they are native seeds of South America, imported a few years 'ago into this country by a person with whom he is well ac-'quainted. This person, it seems, had curiosity sufficient to 'request of his son (I think it was) to hand him occasionally 'any plant or seed which might be considered any way singular 'in its properties. Accordingly, in one package, consisting of 'potatoes, &c. was a small parcel of these American oats, a-'bout as many as might fill an ordinary snuff-box. From this 'small original importation, and from the circumstance of their 'having been in a potato package, sprung the oats which now 'go under that name. He thinks they are already very much 'mixed or degenerate, and promises to present in Haddington 'market a few bolls of the genuine ones from the county into 'which they were first brought. If I have in any degree mis-'stated the article relative to the origin of Potato Oats, I hope 'my informant, or some person, will kindly correct the mis-

'take in some of your succeeding Numbers.' My kind and much esteemed friend Mr Brown, to whom we are indebted for some very valuable observations, which are in general characterized by good sense and an enlightened judgment, considers the history of the Potato Oat to be a matter of little importance; 'for the variety so distinguished is universally recognized as the 'best kind of oats for good soils; but whether they can be 'sown with equal advantage on inferior soils, is not so clearly 'established.' That an agriculturist, of extensive practice and information, who has himself been much benefited by this variety of oats, should be indifferent with respect to the discoverer of it, is not consistent with the ardour he has invariably manifested in rewarding agricultural merit. Was not Mr Brown one of the firmest friends and warmest advocates for Mr Meikle? Yet I may venture to ask Mr Brown, whether he and the country is now more enriched by the discovery of the Potato Oats, or the mechanical ingenuity of Mr Meikle? Perhaps I may go still farther, and ask him, whether he does not think the introduction of the Potato Oats into the northern parts of these kingdoms, has been of more real service to the interest of the farmer, than the combined exertions of all the agricultural societies in the United Kingdom?

It is with great pleasure I acquaint the public, that they are indebted, for the information on this subject, to George Culley, esq. senior, Northumberland, at whose request, and as a proof of my sense of his kindness, I was induced to institute this inquiry. The following account was given me by Mrs Jackson, Mr Jackson, Mr Hislop, and Mr Thornthwaite, whose statement I wrote down immediately in their presence, and have satisfactory evidence to consider it authentic. Mrs Jackson, formerly of Threepland, in the parish of Torpenhow near Cockermouth, who certainly merited a reward as the first cultivator of this variety, died a few years since, and justly acquired an excellent character for her many amiable qualities. Mr Daniel Jackson her son, a very respectable yeoman, at present resides at Parsonby, near Cockermouth. Mr Hislop is a farmer at Warthon, under J. D. B. Dykes esq. of Dovenby-Hall, and is much esteemed for his industry and integrity.

Whilst Mr Hislop, at that time a farm-servant with Mrs Jackson of Threepland, was reaping a field of wheat in the year 1788, he was struck with the appearance of some oats which he observed growing *promiscuously* with the wheat. Considering these oats to be the NICEST he had ever seen (I use his own language), he showed them to Mr Daniel Jackson, and they resolved to preserve them. The stalks on which the oats grew had proceeded from only a single grain; and they laid them on

a stook of wheat. When Mrs Jackson brought them some refreshment, they requested her to look at the oats, which, without reflecting on the riches she was then carrying for the farmers in her native country, were dragged after her on the ground, and, in consequence, a considerable quantity of seed was lost. Mrs Jackson and her son neglected sowing them in the spring of 1789. In the year 1790, the produce was three quarts. In 1791, three Carlisle pecks. In 1792 they had four Carlisle bushels; and in 1793, they sold four bushels to Mr Thornthwaite, Mrs Jackson's son-in-law, who first called them Potato Oats, in consequence of his *erroneous* OPINION, that Mrs Jackson found them growing amongst potatoes. To those who have been accustomed to examine the nature of historical evidence, this account must show with what caution every fact should be received which depends solely upon tradition, since, in this instance, a son-in-law, residing at the distance of not more than one mile from the very field in which the parent seed grew, has ignorantly given it a name which it will probably for ever retain. PERHAPS the name induced the correspondent of Urbanus (Far. Mag. vol. IV.) to invent so wild a story, with a view to impose upon some credulous farmers, by demanding an extravagant price for his genuine bolls of oats. Nothing can prove more clearly the necessity of rational conjecture, where history fails, than the opinion of the 'Friend to Improvement' (vol. VI. Far. Mag.), which *seems* supported by a *correct* account of its discovery. It is an ascertained fact, that the greatest part of the wheat sown in Cumberland came originally either from Essex or Kent; and the description given by the Complete English Farmer of the Essex Oat, corresponds with that of the Potato. The strongest objection against this supposition is, that the Potato Oat does not succeed well in the vicinity of London. Mr Faulder, a very respectable farmer in that neighbourhood, told me his *experience* had proved it. Mr Hislop may justly be considered to merit much praise for his attention and observation as a servant; and Mrs and Mr Jackson for not neglecting or despising his hint. Whilst an Elkington and a Meikle have received either public or private remuneration for their ingenuity and improvement, with confidence I appeal to George Culley esq. senior, whose judgment as an agriculturist none can dispute, whether a Hislop and a Jackson ought to be wholly neglected? Might not either a pecuniary or honorary premium induce other masters or servants not to neglect any valuable varieties of grain their observation should discover? A sincere wellwisher to your Publication,

FRANCIS SIBSON.

Cannonby, near Maryport, April 1813.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On Planting and Rearing Thorn Hedges. By WILLIAM AITON, *Writer, Strathaven.*

SIR,

FENCES in Scotland have long been, and still are, formed of various materials; as, sod, stones, and quickset. Fences of sod are sometimes erected in moorish districts, where thorns could not be raised to perfection, and where stones cannot be found. Those of stone are preferred by many, in all situations where materials can be found to form them. Others, with much more taste and judgment, never erect stone dikes, except in situations where thorn hedges cannot be made to grow. The advocates for stone dikes argue, that they form a complete fence at once—need no tutory—do not harbour birds—do not encourage the growth of weeds—do not prevent the corn from drying in harvest—and when they fall down, they can be rebuilt of almost the same materials. But they cost three or four times the expense, while they have neither the durability, nor afford the shelter of thorn hedges. Unless they are founded deep, or on rock, they are overturned by the frost in a few years, especially if the dikes run from east to west. For these reasons, I am convinced that, except where the ground is to be pastured by sheep, or where the soil is too shallow and dry for the growth of thorns, stone dikes ought never to be built.

Thorn hedges are, of all other fences, the cheapest, most beautiful, most durable, and most valuable yet known; and no other ought to be formed, where these can be made to grow. White thorns seem to have been formed by nature for fences. They sometimes become stunted in their growth, and at other times they totally die. These evils have by some been imputed to the climate, and by others to the soil in which they have been planted; but, in very many cases, the puny growth or death of the thorns results from unskilful treatment.

One of the strongest thorn hedges I found in the county of Ayr, when I surveyed it for the Board of Agriculture, was on the farm of Waterhead of Nith, in the parish of New Cumnock, and which I believe is situated in a greater elevation than any other in that county. The thorn hedge of the most luxuriant growth, on the Dukedom of Hamilton, or in the county of Lanark, is at Halls of Glengivel, near the sources of the Aven. Thorns may be seen growing twenty feet high at Wanlockhead, the highest situated village in Scotland. Many thorns have grown to the size of trees on the skirts of Hartfell, and on the sides of many other of the highest hills towards the sources of the Clyde, the Tweed, and the Annan.

Neither does the sterility of the soil prove such a bar to the growth of thorns, as some have represented. I can point out many instances of thorns growing to all the height and strength that is necessary for shelter, ornament, or a fence, in meagre poor land, that would not rent at more than 10s. per acre: while the hedges that had been planted on land in the same parish, which would bring more than ten times that rent, have totally failed. It is not the richness of the soil, but its quality for retaining moisture, and the manner in which the dikes are formed and kept, that govern the growth of thorn hedges.

The whole art of raising white thorns into a fence, lyes in placing them within the reach of a due supply of moisture, the benefit of the sun and weather, and in keeping them from being overgrown with weeds.

There is one fact that requires to be particularly attended to in planting and rearing thorn hedges, and on which, above all things, the luxuriance of their growth depends, namely, that the white thorn requires much more moisture than either beeches, crab-apple trees, or the generality of trees or shrubs; and the stuntedness of the growth of hedges, in nine cases out of ten, proceeds from the want of a due supply of moisture; though thorns may be killed or drowned with too much water, and therefore ought not to be planted where springs or stagnant water reach their roots.

This privation of moisture proceeds from two causes, that fall to be known and attended to, viz. the open permeable nature of the soil and subsoil, and the improper manner of forming the dikes in which the thorns are planted.

Every person who has paid the least attention to the state of thorn hedges, must have noticed, that they grow better in a clay soil, than they do in one of sand. This is entirely owing to the former being much more retentive of moisture than the latter. Where the soil is moderately retentive of moisture, and the dike formed in a proper manner, thorns will grow very well; but where the soil is composed of dry sand or gravel, resting on an open permeable subsoil of gravel or rock, it will not be easy to rear a thorn hedge: And it would be better, in that case, to plant beeches or crab-trees, as both of them grow with less moisture than is necessary for thorns. Or if the soil is too dry for them, the fence ought to be built of stones.

Wherever a thorn fence is attempted to be raised on a dry or sandy soil, the trench should be opened on the lower side, and the dike reared on the rising ground, so that when heavy rains fall, the moisture may run towards the root of the thorns. But if the trench is formed on the rising ground, it will inter-

cept and carry off the water; and even that which falls on the dike itself will not sink to the thorns, but run down hill. I have often seen the thorns in dikes formed on that plan, and those that had been carried along the summit of a ridge of sandy ground, stunted, and many of them dead; while the thorns on dikes on the same field, where the ground declined towards the back of the dikes, and sent in the moisture to their roots, were growing with considerable vigour. Wherever a thorn hedge is planted in a dry sandy soil, the thorns ought to be placed low in the dike, and great pains taken to keep the dike free of weeds.

When thorns are planted in a dike formed of the most sterile moss, they grow as well, for the first two or three years, as they do in rich mould. But whenever the moss comes to be divested of moisture, the thorns become stunted; and unless means are taken to supply that necessary part of their food, they will soon die. Some excellent hedges have been reared in deep moss at Castlehead, and at Trafford in Lancashire, by planting the thorns upright about a yard from the brink of a ditch.

But though clay, earthy, or loamy soils are more propitious to the growth of thorns, and naturally retain moisture sufficient to feed them; yet, even in these soils, the thorns become stunted, or die for want of sap. This proceeds from the improper manner in which the dikes are built. In order to form a fence at once sufficient to turn cattle, a trench, five or six feet wide, and from three to four feet deep, has generally been dug, and not only the earth taken from it, but a considerable quantity of turf dug up on the other side, and the whole formed into a dike several feet high, tapering narrow at the top. As these dikes are generally built in the winter or spring season, when the ground is overcharged with moisture, the thorns have, for some time after they are put up, a sufficient supply of that important article of their food. But as the dike is raised high above the thorns, like a wedge, and faced up on the one side with turf, the water that falls on it does not sink to the roots of the thorns, but runs off on both sides, as from the roofing of a house; and the heat and influence of the sun, without which no plant can thrive, cannot reach the roots of the thorns. If the soil is sandy and permeable below, the thorns, in a dike so constructed, begin to be starved for want of sap, by the second or third year; and even in those of clay, they do not grow with much vigour after the fifth or sixth year: And in a few years more, if the dike or mound of earth is not thrown down, so as to permit the fresh rains to sink, and the heat of

the sun to reach their roots, they become stunted, while moss grows over them, and many of them die. If the dike is not formed chiefly from one ditch, but of soil taken up on both sides, and part of the turf built up with the sward outermost, the rich soil sooner parts with the natural moisture, and becomes drier, than when it is formed of the sterile earth under the soil. The dikes, in that case also, become sooner covered with grass and weeds, which absorb the moisture that falls in moderate showers, and operate as thatch, to send off those that are more copious. The heart of a high dike of that construction will often be found as dry as if it had been roofed in; and the thorns die for want of sap. Nine tenths of the hedges in Scotland have been injured, and very many of them lost, from these causes.

To prevent these, I would recommend to cut only a small trench or *sheugh* in front of the dike, and by no means either any trench or facing with sod on the other side. The soil, or first spading taken from the trench, ought to be buried in the centre of the dike; and the sterile earth from the bottom of the sheugh, which is not so propitious to the growth of weeds, laid over it. Rich earth or soil heaped above the thorns, can do them no good, as their roots do not ascend, and it is hurtful in raising weeds. But that which is taken from under the soil is sterile, and permits the rain water to sink to the roots of the thorns. The top of the dike ought not to be made sharp, to send off the moisture, but rather broad, that it may sink to the thorns. Neither should the dike be raised high above the thorns, as it excludes the heat of the sun, without which no plant can thrive. If three or four feet of earth were heaped over the roots of any plant, and the rain water sent off as by a roofing, their growth could not fail to become stunted, as well as the thorns in a dike of that construction.

The doctrine taught in this paper is confirmed from the effects produced on a stunted hedge, by digging up the mould that covers the roots of the thorns, and letting in the fresh rains to them. They will then revive, and grow with renovated luxuriance. And the few surviving thorns growing to a goodly size here and there in a hedge that had failed, shows that there is nothing inimical to the growth of thorns in either the soil or climate. Those that survive have, by accident, been planted within the reach of the moisture, or have found means to put forth shoots to where it was; while the plants that were not so favourably situated, were starved for want of sap.

It will be objected to dikes here recommended, that they are not at first complete fences.—That is no doubt true.—But, as

the thorns form the better part of all fences into which they are planted; and though the mound and sheugh, when large, may form a sort of fence at first, yet they soon fail to be so: The trench and dike ought to be but secondary objects, and every thing should give way to the rearing of the thorns. Besides, the value of the additional ground which a large sheugh and dike occupy, and the greater expense which they cost in forming, would more than defray the expense of a paling of stab and rail, or a topping of dead thorns or brushwood, on a dike of the description I have recommended, till the thorns come to be a complete fence. So that the plan I propose would raise the best thorn fence, at less expense than the mode generally followed.

Dikes on the sides of roads, where the ground is nearly of equal height on both sides, and in all places where the ground declines from the road, ought, if possible, to be planted with the dike laid towards the road, and the trench on the outside of the dike. In that case the roots of the thorns extend towards the road, and are fed by the moisture from it, and greatly enriched by the dung dropt thereon. Thorn hedges, that are planted on the declining sides of roads, generally grow luxuriantly.

Some people of a speculative turn, chiefly in the county of Lanark, entertained a notion, some time ago, that the stuntedness of thorn hedges proceeded from the roots of the thorns sinking into the sterile clay, or cold till, in the subsoil. To prevent this, they heaped up a mound of soil to the height of four feet, collected from both sides, and built up with turf; and they planted the thorns erect on the top of these mounds, to prevent them, as they imagined, from striking their roots into the barren till below the soil. But, except where the soil is low, and too wet for the growth of thorns, this is, of all the methods that have been tried, the most improper.

The notion of thorns, or any other plant being killed, when their roots reach the cold till below the soil, is a mere conceit. Nature has taught plants, better than theorists can do, where to strike their roots in search of food. They send them in every direction, where the food on which they live can be collected, but in no other. If a fibre shall have been struck into a crevice or place where no vegetable food is found, it may die; but if any of the other roots can find food to the plant, it will continue thriving. If every thorn or plant died when its roots reached the cold till, or sterile subsoil, none could live for more than a few years. So long as the plant can find vegetable food within its reach in any direction, it will extend its roots there, and thrive.

When fruit-trees became stunted in their growth, it was by them also imputed to their roots reaching the till. And by way of teaching the trees better economy, flag-stones, or a pavement, were laid between the soil and subsoil, with a view to compel the trees to grow *secundum artem*, instead of *secundum naturam*. This was a mere freak; for roots of trees would soon reach farther than the broadest flag that could be laid under them, and they would sink into the seams of the pavement, and reach the till below.

But it is not in clay soils, or where the subsoil is a cold clay, that the thorns become soonest stunted, or die first. That happens much more frequently in dry, sandy, or gravelly soil, or on dry rocky parts, where there is no till within reach of the roots, than where the coldest clays can be come at by the roots. The failures in the growth, which they imagine proceeded from the roots coming at the cold till, proceed, in nine cases out of ten, from the want of a due supply of moisture.

Dikes formed on that plan, are not such good fences as those formed with a trench; and, in almost every case that I have seen, except in very retentive clay, the thorns do not grow so well; in many cases not half so luxuriant, as when the dike is formed with a trench, and the thorns planted horizontally in the face of the dike.

Hedges are seldom dressed in proper shape. They are either permitted to rise like trees, and their bushy tops to overshadow and kill the smaller branches near the roots; or, if they are at all put hand to, it is by way of lopping off the lower branches, to straight the face of the hedge; while the tops, where the growth is strongest, are allowed to remain. The consequences are, that the hedges grow high and bulky at the top, but so thin below, that the cattle find their way through them.

To prevent this, the hedge, after it rises three or four feet high, ought to be kept thin at the top, in the form of wedges. The lateral twigs ought to be allowed to spread out from near the ground, on both sides, to the extent of 18 inches or two feet from the stem, and the hedge tapered from that on both sides, to a thin top like a horse's mane when kept short and standing upright. When that is done, the heat, light, dews, and rains fall upon the parts of the hedge equally, and the thorns grow as close at the root as at the top.

To many of the most intelligent of your readers, these remarks may seem trite and of small importance: But those who have seen the improper manner in which fences are formed and reared, in this part of the country, and how many of them have totally failed, where it would be easy, with proper atten-

tion in planting and rearing the thorns, to raise them to excellent fences, will admit that some direction, on that primary and important branch of agriculture, is much wanted.

I am, Sir, Your most obedient

Strathaven, 5. April 1813. WILL. AITON.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Disease in Turnips called FINGERS *and* TOES.

SIR,

I observed in the LII. Number of your Magazine, a communication from the Rev. Mr Findlater, Newlands, relative to the disease in turnips denominated Fingers and Toes, which he says had made its appearance upon the farm of Drochill, in that neighbourhood; and that he believes it is the first instance of the kind that has occurred in Scotland. This I am extremely sorry to say is not the case, as it has been known here (one of the first turnip districts in the kingdom) for some years past, and in particular situations to a considerable extent. It has hitherto, however, been chiefly confined to a district upon Kail water; and its ravages have been particularly destructive upon the farm of Marlefield, possessed by Mr Oliphant, who has had, for these two or three years past, the half of his turnip crop nearly destroyed by it. Mr Oliphant has taken the most judicious means to ascertain the nature of the disease, but hitherto without being able to assign any positive cause for it. It has occurred upon all the different varieties of turnip soil, as well as upon land that had been recently limed; but its ravages are most destructive upon light sand and moor soil. From an examination of the diseased plants (which were exactly similar to what Mr Findlater describes) and an attentive consideration of the circumstances connected with it, I am decidedly of opinion, that it is occasioned by an insect preying upon the roots, and preventing them from penetrating into the soil, to receive that nourishment which is necessary to perfect the plant. That the disease is more destructive upon light sand and moor soils, may readily be accounted for, as they are naturally not fertile, and of course more liable to the ravages of the insect tribe than land of a richer and more perfect quality.

A circumstance was communicated to me lately, which strongly corroborates this opinion. Mr Purves at Crookhouse, in the neighbourhood of Marlefield, had a field of turnips some years ago very much infected with the disease. He found it necessary

to lead off a proportion of the diseased turnips into a stubble field adjoining, for the use of some young cattle. For that purpose, he enclosed a small part of the field with a paling, upon which the turnips were laid and ate by the cattle. This field was sown with turnips the succeeding season; and, during the summer, the crop upon that part of the field upon which the diseased turnips had been laid for the cattle, was infected, and almost completely destroyed; whereas the other part of the field, upon which none of the turnips had been ate, was entirely free from the disease, and not in the least injured.

As you justly observe, this is a subject of the most serious consideration to all the turnip districts; and it is of great importance that the nature of the disease should be correctly ascertained, and, if possible, some means devised for its prevention.

WILL. BELL.

Roxburghshire, 10th April, 1813.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

An Account of a Comparative Trial of Five Thrashing-Mills in the County of Clackmannan: With an Engraving, and Description of the Wheels, and Number of Teeth in each.

Communicated by J. F. ERSKINE, *Esq.*

SIR,

IF you think a particular account of the trials of some Thrashing-mills in Clackmannanshire, will anywise conduce to illustrate the use of these excellent machines, you have my liberty of making whatever use of it you please.

Having often heard various disputes on the quantity of grain thrashed in an hour by different thrashing-mills, but without any specification of the thickness, length, or weight of the sheaves, I was desirous of having a trial made of some mills in the neighbourhood of Alloa, when these things were particularly attended to. I, therefore, at the close of autumn 1811, gave directions to a very intelligent and attentive head-man of a farm, to take two cartloads of strong oats, that grew in one field, to the several mills; and as I knew how much depended on the feeder, I desired him to feed all the mills himself, and that the same horses should be employed in working them.

The following Tables show the result of the trial.

A Trial of Thrashing-Mills on several Farms in the County of Clackmannan.

Mills of Four-horse Power.

NAMES of FARMS.	No. of Sheaves.	Weight.			OATS. Measure.				Weight.			Weight of Chaff.			Weight of Straw.			Weight of refuse.			Time in Thrashing.	Quantity thrashed per hour.			
		Cwt.	Quarters.	Lib.	Bolls.	Firlots.	Pecks.	Lippies.	Cwt.	Quarters.	Lib.	Cwt.	Quarters.	Lib.	Cwt.	Quarters.	Lib.	Cwt	Quarters.	Lib.	Minutes.	Bolls.	Firlots.	Pecks.	Lippies.
Hilton - -	228	19	..	..	3	3	2	..	8	2	..	1	..	..	9	1	22	..	..	6	15½	14	..	3	2
Alloa Tower -	228	19	2	7	3	3	..	1	8	1	24	1	..	12	9	3	20	..	..	7	14	16	..	2	2
Shaw Park -	228	18	2	7	3	2	2	..	8	1	2	1	3	..	8	2	..	..	..	5	13½	16	..	1	3
Total - -	684	57	..	14	11	1	..	1	25	..	26	3	3	12	27	3	14	..	..	18	43	46	1	3	3
Medium -	228	19	..	4⅔	3	3	..	⅓	8	1	18	1	1	4	9	1	4⅔	..	..	6	14⅓	15	1	3	3⅓

Mills of Six-horse Power, worked by Four Horses.

Parkhead - -	228	18	2	..	3	2	3	..	8	1	7	1	1	..	8	3	15	..	..	6	13½	16	1	2	..
King of Muirs	228	20	1	..	3	3	..	..	8	1	7	1	1	..	10	2	15	..	..	6	11	20	1	3	1
Total - -	456	38	3	..	7	1	3	..	16	2	14	2	2	..	19	2	2	..	..	12	24½	36	3	1	1
Medium -	228	19	1	14	3	2	3	2	8	1	7	1	1	..	9	3	1	..	..	6	12¼	18	1	2	2½
3 of 4-horse power	684	57	..	14	11	1	..	1	25	..	26	3	3	12	27	3	14	..	..	18	43	46	1	3	3
2 of 6-horse power	456	38	3	..	7	1	3	..	16	2	14	2	2	..	19	2	2	..	..	12	24½	36	3	1	1
Total - -	1140	95	3	14	18	2	3	1	41	3	12	6	1	12	47	1	16	..	1	2	67½	83	1	1	..
Medium -	228	19	..	19⅖	3	2	3	3⅓	8	1	13⅖	1	1	2⅖	9	1	25⅖	..	..	6	13½	16	2	2	2⅓

As it was known that this was a trial of different mills, the people employed grew very keen, and every one exerted himself. The horses could not have continued to work at the same rate for an hour.

If the four horses had thrashed 24 bolls, corresponding nearly to 144 bushels, or 18 quarters in four hours, it would have been good work.

Some of the sheaves were four feet in length. On a medium, they might be reckoned about 3½ feet.

If a thrashing-mill puts through 384 sheaves in an hour, the horses would be very warm.

Twelve of the above sheaves would weigh (straw and grain included) about one hundred weight.

Specifications *of the* Teeth *and* Pinions *of the several* Thrashing-Mills.

Fig. I.—*King of Muirs' Thrashing-Mill.*

Arms of horse wheel, 25 feet 9 inches diameter.
Horse-course from centre to centre, 23 feet 4 inches.

No.		Teeth.
1.	Horse-wheel has - - - -	390
2.	Pinion on upright shaft, driven by No. 1.	17
3.	Crown-wheel on the axle of No. 2. four feet diameter	72
4.	Drum pinion, turned by No. 3. - -	17
5.	Thrashing-drum fixed on the same axle.	
	Total number of teeth in principal wheels -	496

Wheels for driving the Rollers.

	Teeth.
Pinion on upright shaft has - -	28
Wheel on the iron spindle - -	28
Ditto opposite end - - -	28
Pinion - - - - - -	16
Small pinion - - - -	10
Bonnet-wheel - - - -	24
	134
Total number of teeth in said mill -	630

—and the shakers driven with a belt. There are two straw-shakers, and one pair of fanners.

Fig. II.—*Parkhead Thrashing-Mill.*

No.		Teeth.
1.	Horse-wheel, 26 feet 3 inches diameter -	364
2.	Pinion foot of upright shaft driven by No. 1.	17
3.	Crown-wheel on the axle of No. 2. -	80
4.	Drum pinion - - -	15
5.	Length of drum 4 feet.	
6.	Diameter of drum 3½ feet.	
	Two straw-shakers and two pair of fanners.	476

THRASHING MACHINE'S

King of Muirs

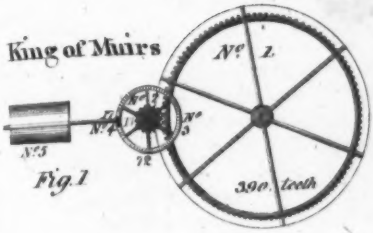
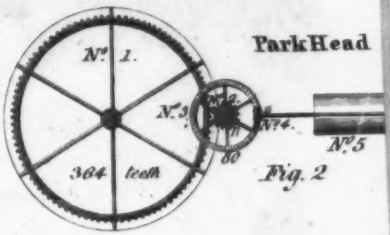


Fig. 1

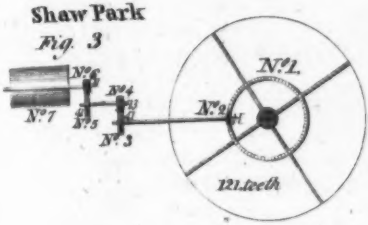


Park Head

Fig. 2

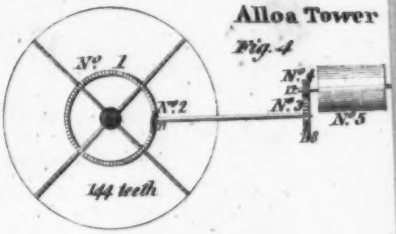
Shaw Park

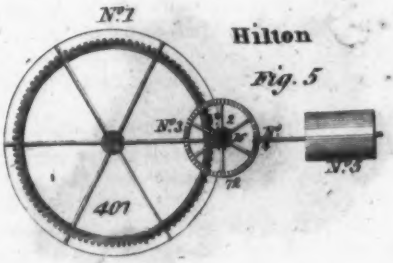
Fig. 3



Alloa Tower

Fig. 4





Hilton

Fig. 5

FIG. III.—*Shaw Park Thrashing-Mill.*

No.		Teeth.
1.	Horse-wheel	121
2.	Pinion lying shaft driven by No. 1.	14
3.	Spur-wheel on the axle of No. 2.	41
4.	Pinion turned by the wheel No. 3.	13
5.	Spur-wheel on the axle of No. 4.	41
6.	Drum-pinion	11
7.	Length of drum, 4 feet 5 inches.	
	Diameter of drum, 3 do. 2 do.	241
	One straw-shaker and one pair of fanners.	

FIG. IV.—*Alloa Tower Thrashing-Mill.*

No.		Teeth.
1.	Horse-wheel, 9 feet 9 inches diameter	144
2.	Pinion lying shaft	17
3.	Spur-wheel 6 feet diameter	148
4.	Drum pinion	12
5.	Length of drum, 4½ feet.	
	Diameter of drum, 3 feet 2 inches.	321
	Two straw-shakers and one pair of fanners.	

FIG. V.—*Hilton Thrashing-Mill.*

No.		Teeth.
1.	Horse-wheel, 26 feet 5 inches diameter	407
2.	Pinion foot of upright shaft	16
3.	Crown wheel	72
4.	Drum pinion turned by No. 3.	17
5.	Length of the drum, 4 feet 10 inches.	
	Diameter of the drum, 3 feet 2 inches.	512
	Two straw-shakers and one pair fanners.	

The mill at King of Muirs will thrash eight bolls, corresponding nearly to 48 bushels, or six quarters, per hour, with six horses; or, 32 bolls, corresponding nearly to 192 bushels, or 24 quarters, in four hours, without overworking the horses.

The diameter of the horse-course at Shaw-Park thrashing-mill, from centre to centre, is 22 feet 10 inches.

The horses make three turns in a minute.

Revolutions of the feeding rollers 37½ times per minute.

Ditto of the straw-shakers 30 ditto ditto

Ditto of the drum 300 ditto ditto

At the above rate the mill would thrash five bolls (corresponding nearly to 30 bushels) per hour.

This the feeder considers good work; and what four horses could stand to perform each day.

The quantity thrashed in four hours 20 bolls, corresponding to 119 bushels; in eight hours 40 bolls, corresponding to 238 bushels.

The feeder is of opinion that the above quantity could be done by all the three mills of four horses' power; but not much more, without straining the horses.

The thrashing-mill at Parkhead has two pair of fanners, one under the other, drove by the horses. The cleansing fanners of all the rest are placed separately from the first pair, and are generally driven by hand; for though they can be wrought by the machinery, this additional labour is, however, found to be too hard work for the horses, to continue at it for any length of time.

The attentive and intelligent feeder preferred the mill at Parkhead (which was erected under old Andrew Meikle's own eye, and perhaps it was among the last, if not the very last, which he wrought at with his own hands), as she has more power of stroke on the grain, which he thinks proceeds from the drum having a quicker motion, and likewise four inches more diameter.

Some people may think, that the larger the diameter of the drum, the greater the strain upon the horses; but, although that may be the case, the motion and stroke of the drum must have a great power to thrash faster and cleaner.

The drum rollers and shakers being each four inches shorter, will lighten the horses' draft more than the extra diameter of the drum will add to it.

If the mill loses motion, it is soon felt, both by loss of time, and bad thrashing: some people imagine that the mill must be thicker fed, being four inches shorter in the drum; but these four inches upon four feet will never be felt. The above motion and diameter of the drum will, in the feeder's opinion, obviate, and do more than compensate for this circumstance.

Number of Hands employed at the Thrashing-Mills.

The feeder - - -	1
One man and a woman to hand the sheaves from the mow to the feeder - -	2
One man riddling the grain - -	1
Men taking away the straw from the shakers, and stacking it up in the barn - -	3
A man (or lad) driving the horses -	1
Total people employed -	8

The same horses wrought all the mills.

The height, age, and weight of the horses that wrought the mills, were as follows.

	Height.	Age.	Weight.
1. Nancy	15 hands	13 years	12 cwt.
2. Jack	15¼	20	10½
3. Glasgow	14¾	14	9
4. Bussy	14¾	5	9½

If I had remained in the country, I might perhaps have been induced to have had some more accurate trials of these mills, by making the same feeder and the same horses work four hours in each of them.

Four of the aforementioned mills were substantial ones. Only the mill at Shaw Park was intended to be made on an economical plan;—a common fundamental error of making the machinery too slight to undergo any extra fatigue, which usually happens in the beginning of harvest, when the straw and grain are in a raw, tough state, and much work is required to be performed in a small space of time. The slight mills usually give way on this pressure of business, which creates great disappointment and an actual loss,—probably a greater charge than what would have made the mill of a proper degree of strength at the first. This was ascertained in the mill at Shaw Park; and alterations were then obliged to be made on it, in order to stand the ordinary fatigue of work at that season of the year.

One of the best thrashing-mills in the country was erected in 1799, by days' work; the cost of which was estimated (wood, iron, and all workmanship included) at 100*l.*

It has thrashed more than the crops of a farm of 180 acres; and the expense of repairs (including one guinea, which was the expense of putting the mill in complete order before the harvest of 1812) did not exceed five shillings *per annum*.

The mill wright, some years ago, erected these thrashing-mills for 130*l.*; and I believe would still undertake to erect one, (notwithstanding the great additional price of wood and iron), for 160*l.* or 170*l.*

There is little chance of such substantial mills giving way at any time; and they can be depended on thrashing completely the grain in a raw state.

The difficulty of immediately stopping the horses when the feeder requires it, has been often experienced; but that is easily obviated, by hanging a small bell directly over the centre of the horse-course, (the bell-rope hangs on one side of the feeding-bench); and the horses in a very short time learn to stop on the ringing of the bell, and that more instantaneously than by the driver's voice; and as quickly resume their labour again on the second ringing of the bell.

Thrashed at Shaw Park, by Two Men, the following Quantity of Oats.

1812.		Sheaves.	Cwt.	Quarters.	Lib.	Bolls.	Firlots.	Pecks.	Lippies.	Cwt.	Quarters.	Lib.
Jan. 18.	Oats and Straw	228	18	2	7							
	Oats -	-	-	-	-	3	3	-	-	8	-	-
	Chaff -	-	-	-	-	-	-	-	-	1	-	-
	Straw -	-	-	-	-	-	-	-	-	9	2	3
	Refuse	-	-	-	-	-	-	-	-	-	-	4
		-	-	-	-	3	3	-	-	18	2	7

3 Bolls 3 firlots correspond nearly to 22¼ Winchester bushels.

Two men thrashed the above in 8½ hours, and one woman ridding the barn.

The measure of the oats from the flail was much the same as those thrashed by the mills, but the weight of them about 30 lib. less; which difference was occasioned by the thrashing-mills being driven with such great velocity, that they sent back most of the shagg amongst the chaff, which made a better and heavier sample of grain.

The men who thrashed the Oats with the flail, were so earnest to have their quantity to measure equal with the Oats thrashed by the mills, that they would not drive the fanners properly; for if the fanners had been driven with equal velocity, the quantity thrashed by the flail would not have exceeded 3 bolls 2 firlots, or little more than 21 bushels.

J. F. E.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Management of Wool, while in the Hands of the Farmer.

Sir,

I propose, through the medium of your Magazine, to lay before the public, some observations upon the proper management of Wool; 1st, By the Farmer; and, 2dly, By the Manufacturer. At present I shall confine myself to the former of these particulars; trusting that, on a future occasion, you will also find room for my communication on the latter, if it shall be found worthy of insertion.

As farmers generally enter upon their leases at Whitsunday, I shall begin my remarks on the proper treatment of wool at that term. As soon after it as the weather and state of the sheep will permit, they should all be carefully washed in a pool of running water; first, such as are young or barren, and afterwards the ewes who have lambs. This operation is intended to free their fleeces from the mud and sand which adhere to them more or less in proportion to the quantity of tar mixed in their salve. It is of advantage to plunge them repeatedly over the back until they are thoroughly drenched, that the filth may be more effectually loosened, and more easily carried off by the stream. The process will be aided by obliging them to swim on shore, as the exertion which they are thereby constrained to make, helps them to throw off more of that incumbrance. After allowing them an hour or more to rest, the operation should be repeated, (three, or even four times, if necessary), increasing the interval of rest every time, until the wool be entirely cleansed from every impurity. Untarred fleeces may be sufficiently washed by driving the sheep once, or at most twice, through the pool, provided the shepherds are attentive to duck every one of them at least three times, and to shake and rub the wool upon their backs and sides, to assist the water in reaching their skins, and detaching from them the adherent dirt.

Upon coming finally out of the water, they should be marched slowly to a dry and smooth part of the farm, and not suffered to go near broken banks, or rugged ground, where sand or clay might be again rubbed into their dripping fleeces. * It is of importance to wash them early in the day, (from seven to twelve o'clock), especially in clear and warm weather, that when the operation is over, they may derive some benefit from the influence of the sun, and have longer time to dry and recover their native warmth, before the cold and damp of evening comes upon them. In proportion to the closeness and weight of their wool, it must absorb the more water, and retain it for a longer period: Consequently, when sheep are well fleeced, and completely washed, they can *rarely*, if ever, be sufficiently dry for

* When sheep are turned out after having been clipped, they are extremely apt to rub their backs and sides on all such rugged places; and the sand and gravel, which are thereby lodged in their fleeces, can very seldom be removed, even by the greatest care and skill in washing them, and have been known to blunt and spoil the shears. All broken banks, therefore, should be carefully sloped or filled up, as far as practicable. For by rubbing upon them, the wool is fretted, its growth is retarded, and it suffers both in quantity and quality.

the shears, even in a favourable season, until at least 48 hours after being washed. A longer time is generally requisite; for no wool should be clipped with the least wetness upon it; and all wool will look and handle better, cut with its natural juice in full circulation, than when the circulation is stopped by the chilling cold.

Too much care cannot be taken to cut the wool quite even and close to the skin, * because it feels more kindly towards the bottom of the pile;—it has a fresher appearance;—and it weighs heavier;—for even a trifling addition to its length increases the weight of the fleece. More ready access is likewise opened for the application of any ointment or liquor to the skin, which may be thought necessary for destroying vermin, or preventing them from molesting the sheep. Tobacco juice has been attended with a good effect. But though it kills and banishes vermin, it sometimes sickens the animals, and it does not favour either the growth or the melioration of their wool. All these good purposes may probably be more surely promoted by anointing the bare carcases of new shorn sheep with common oil, bestowing the utmost attention and pains to rub it upon the skin, and to leave none of it standing in small globules on the point of the pile.

This experiment was made, on a small scale, about 15 years ago, by an intelligent and accurate farmer in Selkirkshire, who obligingly furnished me with the result at the time; but I cannot lay my hand upon it. I remember, however, that the few thus anointed, were not picked out, but taken at random from the flock;—that their wool sprung luxuriantly;—and that it was so much heavier than the other fleeces, as fully to indemnify his extra expense, but not to yield him any profit. As far as I can recollect, each fleece cost nearly 1½d.—but from its greater weight, fully more than five fleeces would be saved in a pack: And though, in point of fineness, little difference could

* Long-wooled sheep are frequently clipped *across* the carcase, instead of *along* it. The operation becomes thereby more nice and difficult, and is attended with disadvantages. Less wool can be included within the blades; or else, if an equal quantity be cut at one close of the blades, both what is cut off and what is left, must be of unequal length. In the one case, more time will be requisite; in the other, the wool will be less in quantity, and more or less haggled. There is also greater risk of nicking the skin. No short-wooled sheep should ever be shorn in this way. By the other, the shears move in a level, instead of a curved direction; the wool will be cut closer, more equal, and neater; there will be more of it, and the new growth will spring up thick and equal.

be perceived between the oiled and the other fleeces, yet in handling, the former appeared to have more genial softness and sap. From this experiment, trifling and unsatisfactory as it is, I am warranted to insure farmers, who may be inclined to repeat it on a larger scale, against any loss, provided they attend to the precaution of completely moistening the skin with oil, while the expense shall not bear a higher proportion to the price of wool than 8d. per sheep to 32s. per stone. Whoever shall make the trial, and communicate the result to the public, will have the merit of making a patriotic exertion for the good of the country.

All fleeces, upon being clipped, should be wrapped up in a neat compact form, folding in the sides, and rolling them up from tail to shoulder, that the quality of the wool may be seen, without opening the fleece, as well as for the sake of occupying less room, when either packed by the buyer, or kept by the grower; in the latter case, they should be frequently turned over, and exposed to the fresh air,—a precaution which is indispensable when no tar is mixed in the salve,—but becomes less necessary in proportion to the quantity of it that is used. In a very short time moths will find their way into pure white fleeces; and even the greatest care in airing them, will scarcely preserve them for a year from the depredations of these vermin. Though tar be an effectual preventive, yet, if only a very small portion of it be applied, its salutary effect will gradually diminish; but when enough of it is used, fleeces should be compressed into little bulk, and never touched, for the sake of keeping their wool fresh and soft.

The new growth of wool springing up on sheep raises the old from their skins, and would gradually throw it off without much aid from shears. When the pile ceases to imbibe its wonted full measure of nourishment, it spindles towards the root; becomes tenuous, dry, and brittle, and comes away without much clipping. Here nature points out to the operator where to cut; and sometimes too much of the new growth must be left upon the carcase, to admit of its being anointed. But to delay so long seems unwise, for many reasons. 1*st*, Fleeces handle more fresh and kindly the sooner they are cut after their bottoms begin to spindle, and a new growth to arise; and the longer they remain on the carcase after that period, they become harsh and unpleasant to the touch. 2*dly*, As they thus suffer from the new wool intercepting the greater part of the nourishment derived from the body, so they retard the growth of the new wool, by depriving it of a part of its natural food, and excluding it in a great measure from the fresh air; and, 3*dly*, They may be cut more closely, so as to admit the oil to reach the skin. To these

it may be added, as a further inducement to early clipping, that little danger is to be apprehended from the sharp and chilly weather with which we are sometimes visited at the commencement of summer; as oil is well known to resist cold and rain, and that both sheep and lambs thrive better after the mothers are clipped. The precise time, no doubt, must vary, according to climate, seasons, and other circumstances; but, in general, there should be as little delay as possible after the new pile raises the old so far as to admit the shears.

Perhaps in a few clean and warm pastures, white-wooled sheep might be clipped without washing. In general, however, all wool is freshened and improved by being completely cleaned, and early taken from the back.

About 30 years ago, few sheep on the borders of England and Scotland were washed and clipped until the 26th or 27th of June. But now, in that district of the genuine and best Cheviot breed, these operations are commonly begun about the 10th, and completed by the 25th day of that month. This alteration in the practice of experienced Storemasters, supports my recommendation of early clipping. They would not have adopted and persevered in it had it not been beneficial to their sheep and their wool. And they need not be urged to begin still earlier; for their intimate acquaintance with the climate, and with the condition in which wool fetches the best price, will suggest the attempt, if there be a reasonable prospect of its succeeding.

We are so little acquainted with pure Merino sheep in Scotland, that we must be incompetent judges of the fineness and weight of their fleeces. From the nature of the soil and climate in our pastoral districts, it is not probable that either they, or the South-Down or Hereford, will ever be reared in flocks, and preserved in distinct breeds among us. These three kinds, however, and the Leicester, have been of service in improving our native Cheviot sheep; the former in wool, the latter in shape and carcase. I have seen fleeces clipped from the descendants of pure Merinos, (whether from any cross, or from what cross I cannot learn), which were at least one-third finer than the finest Cheviot, and weighed at an average about 4 lib. 6 oz. English.; so that 6 of them would be more than a Scotch stone, while of the very best pure Cheviot, upwards of 9 untarred fleeces will scarcely make a stone. I conclude, from their great weight, that these fleeces could not be clipped from real Merinos; but the fact is worthy of investigation, and can easily be ascertained, if the Earl of Mansfield's factor, or overseer, at Scone, from whence they came, will take that trouble. The few Hereford and South-Down fleeces reared in this country,

will average little more than one half of the above weight; nor is it surpassed by the heaviest Cheviot fleeces, deeply loaded with tar.

That substance is seldom put upon Merino or fine-wooled sheep. The few of them to be found in Scotland, though allowed to range during summer on high exposed pasture, are brought, during winter, into low and sheltered situations, where tar is not necessary to their health and comfort. I understand, that at Lude in Perthshire, it was tried and laid aside, because it occasioned a great decrease in the value of the wool. Whether that decrease was owing to its becoming less in quantity, or coarser in quality, the public may wish to know; but I am sorry that I cannot gratify them. Perhaps the proprietor or his steward may condescend to give them information.

It is not, however, surprizing, that where sheep can thrive without it, people should gladly refrain from the dirty occupation of applying tar in salve. For it improves no kind of wool in *quality*, except that on very old ewes, which it prevents from degenerating, as fast as it otherwise would, into a coarseness approaching towards the hair of goats. * But in all hilly districts, it contributes so very much to the health and comfort of sheep, and consequently to the luxuriant growth and superior weight of their wool, that storemasters are daily more and more convinced of its utility. And they are encouraged to continue the practice of smearing with it, by the great additional weight thus acquired, far exceeding in value the trifling increase in price which the Yorkshire staplers give for untarred wool; the latter being only about 8 per cent., and the former above 20. For of Cheviot sheep, judiciously smeared, 8 fleeces will weigh very little more than a Scots stone; while of the same wool unsmeared, nearly 9½ will in general be requisite.

Now, the Cheviot sheep might certainly thrive as well without tar as Merino, in low protected lands; yet in the pastoral district, though none of it should be in tillage, such situations are so rare, that scarcely one-tenth of an ordinary flock could winter upon them. It is therefore more eligible, both for the profit of farmers and the melioration of wool, that such favoured

* In such cases, a little oil mixed with the butter (at the rate of 1 pint to 8 lib.) will be found a preventive both of the coarseness, and of the wool from *padding*, as it is provincially termed; i. e. running together so close and firm, as not to be teazed or pulled asunder. Several farmers think that all sheep, after being thrice clipped, should be salved in this manner, to keep their wool fresh, soft and fine in the pile.

spots shall be entirely reserved for the few Merino or other fine-wooled sheep which may be kept, and to salve with tar all the rest of the flock.

The first object of attention is the choice of proper materials. Most farmers seem now to be fully satisfied that butter and tar make the best mixture, and that it is their interest to procure both of the *best* quality,—not that the butter should have the richest and sweetest flavour for the palate, but should have the greatest strength and the least refuse, and, when heated, should leave the smallest quantity of dregs, and form the largest, firmest, and heaviest cake. The tar, also, should be pure and rich, without any kind of adulteration. Often, however, various debasing articles are found mixed, both in the sale firkins of butter which come from abroad, and in the barrels of tar. Even ewe butter, made at home, is not always free from nastiness and deteriorating ingredients. From these, tar and butter should be purified as much as possible for the sake both of the sheep and their wool. For this purpose, let the butter be gently heated till it melt, without being oiled, when the greatest part of its impurities will fall to the bottom, and their descent may be accelerated by a little stirring,—and let the tar barrel be dipped in water, made fully as hot as the hand can bear, with its bunghole turned to one side, so as to admit of the tar being poured out without jumbling, when reduced to such a state of fluidity as to part with its gross and coarse parts, and leave them behind in the vessel. The refuse of both may answer many necessary purposes about the farm,—while it would be at least unprofitable, if not noxious in salve.

When the materials are thus carefully refined, the butter may either be poured upon the tar, according to the universal custom at present, or both may be placed over a very slow fire till they become so soft and fluid as readily to mix together. In either case, they should be kept in this equal temperament of gentle heat, and constantly stirred, till they be completely incorporated. Special care must be taken not to warm them more than is absolutely necessary for allowing the stirring process to go on, and preventing them from gathering into knots, or acquiring different degrees of consistency: And they should be preserved in a lukewarm state while used, that they may readily adhere to the finger, and as readily quit it when applied to the sheep. When the wool is parted into rows, not even a single pile should be allowed to lye across the row; and the rows should all be at such an equal distance from each other, that the salve in the one may reach through the bottom

of the piles to the salve in the other, covering the skin completely, and anointing every individual pile.

It is far from my intention to provoke any controversy about the most proper methods of purifying and mixing the materials. Let them be purified and mixed in any way farmers may prefer; I only recommend to incorporate them thoroughly, to guard them against running into knots and inequalities, and from becoming either too thin and soft, or too thick and hard for use; and to lay them regularly and equally, so as to miss no part either of the skin or the wool.

Proper materials, thus judiciously mixed and applied to sheep, must considerably improve their wool. Thinner layers of salve will suffice; the load on their backs will be lightened; there will be less refuse in the wool; and though the fleeces, from the want of it, will not weigh so much, yet they must be more valuable to the purchaser, because they will yield more cloth of equal, if not of better quality, with less trouble to the manufacturer: and this beneficial effect must always be produced in a greater degree, in proportion to the smaller quantity of tar that is used. There is, however, reason to doubt, that less than one-fifth part of it would be unable to detain all the butter in its incorporated state: some portion of it would probably dissolve by the heat of the sheep, leave the tar, and mix with the wool. In situations, therefore, where tar cannot be dispensed with, the weakest salve should consist of four parts of butter, and one part of tar; and, according to diversity of climate and exposure, the butter may gradually decrease; but should in no case be lower than two parts of butter to one of tar.

There can be no doubt that tar contributes to warmth and defence against wet and cold; and therefore its relative proportion to butter should be augmented in the higher and more stormy parts of the country. But though the salve, in such places, should consist of more tar and less butter, it does not follow that a thicker and heavier coat of it should be laid upon a sheep. For when it is skillfully mixed and applied, a thin covering will answer every necessary purpose in any climate; and a large quantity will rather incumber than warm the animal. Too much, even of the best made salve, is not only a needless additional weight, but hurts the wool, and increases the expense. In some very mountainous districts, 28 lib. English of butter, and 5 gallons of tar, is the allowance for 60 sheep. Was that quantity laid upon 40 or 50 sheep, it is obvious, that a vast additional expense would be incurred in smearing a large flock. And if that quantity could be made to go over 70 or 80 sheep, there would be a proportional saving.

Hence arises another argument for being sparing in the use of tar. Though it be absolutely necessary for nine-tenths of the flocks in Scotland, yet three-fourths, or perhaps two-thirds of what is consumed at present, might be quite sufficient for the health, safety, and comfort of the sheep; provided care be taken to get it of good quality, and to incorporate it thoroughly with butter, in such proportions as the experience of farmers in different districts shall discover to be best suited to their respective situations. *

Palm grease has been tried as a substitute for butter. One large flock was wholly salved with the following composition, viz. 16 lib. Scotch, or 24 lib. English of palm grease, two Scotch pints of good lamp oil, and ten Scotch pints or five English gallons of tar, for 50 or 55 sheep. The grease, even with the addition of the oil, has the recommendation of being fully one-third cheaper than butter, and of increasing the weight of wool, without affecting its fineness. So considerable was the additional weight in the instance to which I allude, that four fleeces thus salved, were fully as heavy as five were the preceding year salved with butter: for six fleeces to a Scotch stone, was the average of the whole flock, which for many successive years averaged 7½ fleeces. I understand, however, that in this and all other cases where palm grease has been tried, staplers complained of its discolouring the wool, and rendering the fleeces so moist and clammy as not to be pleasantly manufactured; though the wife of a shepherd found no difficulty in scouring and making perfectly white, a few which were entrusted to her management. This single fact affords a presumption that the alleged evils may be prevented or remedied. Might not a salve be prepared, not altogether, but chiefly of this grease, and partly of butter, with the usual proportion of tar in the common salve? Or, may not the wool be purified, by some simple contrivance or chemical process, from its yellow tinge and viscous adherence?

More attention and time are requisite in salving, washing, and clipping Leicester and other long-wooled sheep, whose ponderous fleeces readily admit, and tenaciously retain every species of dust and stuff which the wind drives along. To anoint those when new shorn, with oil, tobacco juice, or any other liquor, might be

* There have been several instances of sheep having been hurt by the application of tar. In some cases, by laying on too much of it; in others, from its being of too strong and burning a quality. In either case, the evil would be avoided, by mixing more butter in the salve. No injury can arise, either to the sheep or the wool, when the corroding nature of tar is subdued by a sufficient quantity of butter.

useful for destroying vermin, but could be of little service in improving or increasing the weight of their wool; and tar would be noxious to it: To them the preceding observations are scarcely applicable.

I hope, however, that storemasters will not reckon them unworthy of their serious consideration, as requiring more minute and troublesome attention than they can afford, or are disposed to bestow. The slothful are always fertile in finding out difficulties and objections. But the great body of sheep-farmers, whom I have the good fortune to know, are active and enterprizing; and grudge neither labour nor expense, where there is a probability of success. When a feasible measure is suggested, few of them will say with Mrs Maclarty, '*we canna be fashed.*'

N. B. Though I dislike the ostentation of setting my name to this paper, and of mentioning the farmers to whom I allude, yet I make you most heartily welcome to refer any respectable inquirer to them or to me, for every information in our power.

April 1813.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

An Account of the Culture of Fiorin in Lanarkshire.

SIR,

Shotts Iron-works by Whitburn, 1. Feb. 1813.

THROUGH the medium of your valuable publication, the following communications regarding my success in the culture of Fiorin Grass, may not be unacceptable to the greater part of your readers. The cultivation of this valuable grass has recently become matter of much speculation among the agricultural part of society; and I am happy to find that its reputation is fast gaining ground. The speculation of its extensive utility on moss lands, naturally makes it an object of very general attention, particularly in such a high, cold, mossy district as this, where we are placed eight hundred feet above the level of the sea, and find it very difficult indeed, to raise ryegrass and clover. Prior to May last, I had read and heard much of this wonderful grass, but still considered the matter as unworthy of serious attention. About this time, I had the good fortune to meet with the Reverend Doctor Richardson from Ireland, the justly celebrated father of the Fiorin, well known in the agricultural world. For a short time after this I was a good deal in his company, when I heard him set forth the advantages to be derived from the culture of Fiorin grass, in such sound arguments as made me a complete convert to the cause. On the twelfth of May, he was induced to visit me, accompanied by the worthy Baronet, General Sir James Stewart of Coltness, to whose exertions in the

culture of Fiorin, the highest encomiums are due from every well-wisher to the cause of agriculture. On the morning following (13th May 1812), the Doctor himself set my people the example, and commenced the planting of fiorin strings for me. I had at the time a field, which had been potatoes the prior year, and which I intended to sow with barley, and lay down with grass seeds. I asked the Doctor to take what part he chose from this field for the planting of his grass. He replied, that the season proper for planting Fiorin was past, and therefore he would take but a small part of it, in order to ascertain how Fiorin laid down at that season would answer. He chose a corner of the field which was much given to moss, on which he commenced his operations. The method of planting, I shall not trouble you with, as it has been so often repeated by much abler and more experienced hands. Suffice it to say, that the quantity planted was nearly an English acre, which two men completed before the end of May. I then top-dressed the whole with ashes of different kinds from the Iron Works, coal ashes from the workmens' houses, and lime,—taking separate ridges for each kind of top-dressing, in order to ascertain the best. As the best crop of Fiorin grass was on that portion which was top-dressed with the coal ashes from my workmens' houses, and which was fortunately that part of the field most given to moss; I chose it for my trial crop, which I cut the end of November and beginning of December last. The grass, when newly cut, (on a fine dry day), weighed at the rate of ten ton two hundred weight per English acre; which, when sufficiently made into hay, dry enough to be put into a stack of any size, weighed equal to three ton ten hundred weight per English acre. From what I now know of the grass, I find that I have over-dried this hay, as it proves more nutritious for cattle in a less dried state, and will keep equally well in a moderate sized stack. My horses and cattle I found very fond of the Fiorin hay, particularly the horses, who eat it with avidity; but neither of them made any hesitation in leaving my best ryegrass hay for the fiorin. It is here proper to observe, that the ryegrass hay is of the very best quality, not of the growth of this cold district, but brought from the adjoining low country. Last month I laid down on a steep bank of good soil (too steep for any other kind of culture) one and a half English acre of fiorin grass, and have at present eight English acres, mostly moss, with a small mixture of earth, under preparation to be planted during the month of September next. Should fiorin continue to thrive with me, equal to its commencement (which I have no reason to doubt), it will prove a source of much wealth to this part of the country. I am, &c.

JOHN BAIRD.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Causes and Effects of a Diversity in the Size of Farms.

SIR,

IN this paper I mean to offer a few remarks on the causes which occasion a great diversity in the extent of land occupied by different farmers, and to inquire how far the interests of the public are affected by the operation of these causes.

The Reports presented to the Board of Agriculture from the counties of Scotland, have ascertained, that a very great difference in the size of farms does exist; and having also described the state of agriculture in each county, there are ample *data* before the public for estimating the local causes and effects of both extensive occupations and minute allotments. It is to be hoped that the General Report for Scotland will, by exhibiting all that is interesting on this subject in one view, put an end to the agitation of a question, which can only be decided by circumstances, and in the discussion of which a good deal of prejudice has been displayed by men otherways intelligent, as well as by theorists, and by the lower classes generally.

Those who contend for small farms, have endeavoured to support their opinions, by asserting that large farms diminish the rural population, and that by reducing the number of farmers at the same time, and therefore the number of sellers of farm produce, there is less competition in the market, and the price is advanced to the consumer. The advocates for large farms, on the contrary, bid us look at the bad management of small farms, the little produce which they afford, either to the occupiers or to the public; and allege, that if the country was universally occupied in small farms, the public market would be irregularly supplied throughout the year; and, at certain periods, that a very great scarcity and dearth would be felt, which, in bad seasons, would approach to absolute famine. There are others who do not chuse to stand in either of these ranks, but to determine the abstract question by the extent of their own farms, or of those in their vicinity, and to fix a proper size, with little regard to circumstances:—just as an umpire would act, if, instead of deciding upon the merits of opposite demands, he should settle the dispute, by what is called dividing the difference.

It is not my intention to examine these different opinions; but merely to show, that there always must be a great diversity in the size of farms, and that the public have no reason to apprehend the slightest injury, either from their diminution or enlargement.

The size of farms shall here be understood to mean the extent of land occupied by one farmer, whether it is called by one name, or includes what had at one time been possessed in several farms; and without distinguishing whether the whole lyes contiguous or in detached portions. Among the causes which determine this extent of occupation are the following.

1*st*, The irregularity of the surface of the country. Among the mountains and hills of Scotland, there are often natural boundaries, which it would be very inconvenient for a farmer to pass for the purpose of constantly superintending his concerns. The hills are often separated from each other by deep ravines and by rapid rivulets, which at certain seasons obstruct all communication. When a tract of low arable land intervenes, it is generally of so small an extent, and so often intersected by the mountain streams, that it is found more convenient and profitable to render it subservient to the live stock of the higher grounds, by enclosing it, and to retain it either in pasture, or in producing green crops, than to occupy it as a separate farm.

2*d*, The purposes for which natural and local circumstances require the land to be occupied, that it may yield the most valuable produce. Among the former, the elevation, climate, and the quality of the soil; and among the latter, its proximity to large towns, have great influence in determining the size of farms, because they point out the most productive mode of management, whether in tillage or in pasturage, or an interchange of both. It is quite evident that if the sheep-farms on the English borders were divided into allotments of 50 or 100 acres, there could be little or no produce carried to market, and scarcely any rent paid to the proprietors; and on the other hand, that if arable farms were enlarged to the size of sheep farms, the physical impossibility of the occupier's bestowing the necessary attention, and managing them to the best advantage, would soon induce proprietors to diminish them. The same remarks apply to the small farms near large towns, compared with the size of the arable farms a few miles distant.

3*d*, Under any given circumstances, the size of farms must be greater or less according to the capital and skill that are at any time and in any district employed in cultivation. If in both of these there is either a great deficiency or a great abundance, the result will be similar, though not exactly the same. In the latter case they will still be much larger than in the former; but there will be fewer instances of very large arable farms, than in that intermediate stage in which skill and capital are not generally diffused, but are confined to a few individuals who are often seen to occupy a number of separate

farms, which in the progress of improvement are afterwards divided among several farmers.

The *last* cause that shall be mentioned is the state of property. Though small estates do not necessarily occasion small farms, as one man may occupy two or more of them, yet when property is much subdivided, there will often be a corresponding subdivision of occupancy; and there must always be opportunities of obtaining farms of that size, by those who can afford to pay an equal rent with the greater farmer.

Such appear to be the principal causes of the various size of farms in the different counties of Scotland, and even in different parts of the same county. Some of them are founded in nature and the state of society, and may therefore be considered as of a more permanent character than others. Hilly and mountainous districts, depastured by sheep and cattle, can never be divided into portions so minute as those that are arable. Land which requires to be kept under such management, as that every field is successively in grass for three or more years, as is the case upon all weak soils, is generally occupied in larger farms, than land that is capable of producing corn and green crops every alternate year. And the few small tracts of rich loams and clays that may be always in tillage, could not be advantageously occupied in farms so diminutive as even inferior lands near large towns. These distinctions, which are fully recognised in practice, are founded on the less or greater degree of superintendance required from the occupier, in order that the land may yield the greatest returns under the different modes of management prescribed by circumstances; and which can be but little affected by the greater capital of a few farmers, if the others are equally skilful and attentive. Capital is more frequently confined to the enlargement of the farms of each particular class, than employed by one man in occupying farms of different descriptions; though there are instances of farmers of arable land renting separate hill farms with much advantage.

These distinctions might be illustrated and confirmed by reference to almost every county of Scotland in which agriculture has made any considerable progress; but they are still more distinctly observed when the sizes of farms in different counties are compared, particularly when the farmers are nearly upon the same footing, in respect both to capital and knowledge. Thus the arable farms of East-Lothian are not so large as those of Berwickshire, nor so small as on the best soils of Mid-Lothian. In Roxburghshire there are many arable farms still larger than those of Berwickshire, though much below the extent of the sheep farms on the Cheviot hills; and even the

most extensive of the latter are not to be compared with a few sheep farms in the Highlands. In all these cases, the size of farms is chiefly determined by the degree of superintendance required. One man may manage a larger arable farm in Berwickshire than in East-Lothian, because there is a greater proportion of the former in pasturage, and the soil can seldom bear constant tillage. It is observed in the Berwickshire Report, that there have been instances of one farmer managing judiciously and profitably above 4000 acres of land, under the alternate system, in four or five separate farms; but had the land been as valuable as in several parts of East-Lothian, where from 5*l.* to 7*l.* per acre is paid for farms of 200 acres or more, so extensive a concern could scarcely have been a profitable one. To pay so great a rent, the land must be cultivated like a garden, every inch of it must be productive, and that produce must be of the best quality, and turned to the best account. It must be long before the land of Berwickshire shall be able to pay such a rent; and if it ever does, it may be predicted that farms will not then be so large as at present. The arable farms of Roxburghshire are generally much inferior in quality to those of Berwickshire; and from this and other local causes, cannot pay so high a rent: A greater portion is therefore in pasturage, even though the soil is drier and more easily cultivated. In a comparison between the sheep-farms of the Cheviot Hills and the Highlands, it may be thought that this criterion of superintendance falls to the ground; but then it must be considered, that, in the Highland sheep-farms less superintendance is bestowed, whatever may be required; a much greater extent will maintain only the same number of sheep; there are yet but few of them under regular management; and these perhaps, from there being but little competition, taken at so low a rent as may indemnify losses that would be severely felt by those who have to pay the rents of the Cheviot pastures.

These observations may serve to show that there are boundaries to the extent of farms, which capital and skill, united to the most spirited management, cannot pass. There is, therefore, no reason to apprehend any bad consequences from an enlargement of farms, so long as there is a free competition for the occupation of land. No depopulation of the country,—no monopoly of land, and the produce of land,—no combinations among farmers, have ever existed, but in imagination. The nature of the farmer's employment, and his own interest, must confine him to that extent which he can manage with advantage: if he goes beyond it, he cannot pay so high a rent; and the proprietor will immediately let it in smaller portions. Method

and discipline may do a great deal; and some men are much more active and indefatigable than others: but still a few hundred acres of good land, kept in tillage, and burdened with a high rent, require so much attention to manage with advantage, that it can seldom be profitable to entrust several such farms to overseers. Every gentleman who occupies a considerable extent of arable land under the management of a bailiff, must be aware that he seldom draws as much revenue from it as he could have from one or more farmers.

In what respect then, it may be asked, do skill and capital occasion a diversity in the size of farms? Have not farms been greatly enlarged of late years, and the number of farmers considerably diminished? The answer is to be found in the state of agriculture in different districts, and particularly by considering whether capital and knowledge are generally diffused, or confined to a few. It is only during the latter alternative, that any considerable accumulation of farms has taken place: under the former, there are too many competitors all upon a level; though still there are numerous variations, occasioned by individual talent and enterprize.

There are three distinct stages in the progress of agricultural improvement, all of which have been perceived within the last 30 years in several counties; and in one or two of them, they may have been observed in different parts, and the effects of each operating at the same time. There is, 1*st*, the village system, with a small proportion of arable land minutely subdivided, and a considerable extent of outfield. 2*d*, Several of these small possessions are united; and the farmer has the exclusive occupation of as much land as will employ at least one man and a plough fully throughout the year. This is the first stage of improvement: But still, what has been called the *bear-seed* system prevails; fallow and green crops are seldom to be seen, and the outfields rest in security. If the farmer is a man of too much consequence to hold his own plough, there is still no reason why he should be idle; and he becomes a jobber in cattle, horses, &c. and sometimes adds to these the profession of medical science in the treatment of live stock. The proprietor, however, does not find his account in all this: A higher rent must be paid, and new schemes, however disagreeable, must be tried: The land must be enclosed, manured, gently cropped and kept clean; fallow and green crops introduced; something like a regular rotation observed; and the jobbing branch entirely laid aside. Those who do not chuse to follow these novelties must quit, and their place be supplied by others. 3*d*, A number of those farms are successively combined into one large farm; or a single individual

becomes possessed of several of them lying detached. It is in this second stage, that the greatest extent of land is found in the occupation of one farmer, and the greatest improvement made upon the old management. The few who have introduced or soonest adopted fallows, turnips, and sown grasses, may for a time add farm to farm as their capital increases, and still pay a higher rent than their less skilful neighbours. This they must do by carrying to market a greater and more valuable produce. The home consumption that had been wasted in the support of idle horses, and unproductive and unskilful labour, is diminished by means of machinery, better implements, and a more regular division and arrangement of labour. The different operations of the season are executed with greater facility and despatch; to every different soil a suitable crop is appropriated; and to every quality of pasture, such live stock as will yield the most profitable returns. Compared, however, with the former occupiers, this great farmer sustains some small losses; many little profits cannot be attended to, from which his predecessors derived much advantage; and these, added to the value of their own labour, and that of their families, which may have been fully equal to their family expenses, prevent him from gaining any thing, or from paying a higher rent, merely because there is now only one farmer's family to be maintained. But, compared with those who are to succeed him, his disadvantages are much greater; and he soon begins to perceive that his farming concerns must be contracted at the end of his leases. For, *lastly*, as soon as the new practices have been proved to be more profitable than the old, they are adopted by many in spite of prejudices, and the circle becomes speedily more and more extensive. There are now a great many competitors in the field possessed of capital, sufficient for a farm of such a size, as may give full employment to one farmer, who, besides being upon an equal footing with the great farmer in point of skill, can superintend every operation himself, and thus perform it at less expense; at the same time that every minute source of emolument contributes to his income. With these advantages, the man who wishes to occupy four or five separate farms cannot contend; and proprietors, acting from a just regard to their own interest, prefer the tenants who can pay them the highest rents, other circumstances being the same. In this way, though the size of farms is still unequal, both in the same county, and in different counties, it is the natural effect of the general diffusion of skill and capital, to reduce them to the most profitable size, according to the management best adapted to the natural and local circumstances of the land.

But it may still be alleged that this profitable size for the landlord and tenant, may not be so for the public. Now, what is the interest of the public, but to have the greatest possible quantity of grain and butcher meat produced, and brought to market? How can that be done if the land is not occupied in a manner the most profitable for the parties who are more immediately concerned, and who join their capital, skill and labour, to raise that produce? What is raised, and can be spared from the home consumption of the land, must be carried to market for the subsistence of a numerous population not engaged in agriculture. The natural increase of live stock, and the annual reproduction of grain and roots, render it impossible for the farmer to withhold his produce, or command a monopoly price. All that he can do, is what, in other circumstances, the middleman must do in his place—equalize his supply throughout the year; and by the scarcity or abundance of that supply, the price to the consumer must be regulated.

We shall not inquire how far the minute allotments of land, into which, it is said, the mountains of Switzerland and the empire of China are divided, would contribute to the prosperity of this country, and to individual happiness. It is enough to remark, that, in a great manufacturing and commercial nation, such a measure is impracticable.

Upon the whole, the best size of a farm, is that which will produce the highest revenue to the proprietor, whether it consist of a few acres, or as many thousands; but that size is liable to frequent alteration. As it is therefore improper, on the one hand, to permit the buildings and fences of a farm to fall into disrepair, because the tenant may have little occasion for them in his present scale of farming; it is equally so, on the other, to stipulate for his exclusive residence. We contend for the principle of universal liberty, both to landlords and tenants, in the employment of their respective stocks;—for a free, but fairly conducted competition—and for judicious and equitable covenants. I am, &c. C. G.

BRANCH II.

Review of Agricultural Publications.

Art. I. *General View of the Agriculture of Renfrewshire, and an Account of its Commerce and Manufactures: Drawn up for the Consideration of the Board of Agriculture.* By John Wilson. Nicol, London. Constable & Co. Edinburgh, &c. pp. 374.

The county of Renfrew contains nearly 241 square miles, or 154,182 English acres; and is divided by this author into three districts: the *Hilly*, extending over 101,540 acres; the Middle, or *Gently-rising*, 40,580; and the *Flat*, or *Laigh lands*, the remainder. The soil of the first division is said to be a free light earth, on a dry bottom of gravel or whinstone; the subsoil of the second generally *till*, or a mixture of stones and heavy clay, and retentive of moisture; and in the third division, the soil is for the most part a deep rich loam, and seems to be a deposition of vegetable mould from the higher parts. In the Hilly district, the grounds are often very barren, producing ling and heath; and many parts are covered with deep moss, which also prevails in the flat district. In the Middle one, no moss occurs; and the soil is less diversified. The climate, like that of all the western counties, is moist; but the quantity of rain, which is not so great as in some of the western counties of England, is not so much to be dreaded as its frequency. The Middle district abounds in minerals, amongst which coal and limestone are wrought to a great extent. The county is intersected, and excellently watered by the Clyde and other rivers and streams; and will be greatly benefited by the canal between Glasgow and Ardrossan in Ayrshire, part of which is already executed.

The rent of the landed property of the county, including 8,500*l.* for gardens, fisheries, mines, &c. amounted, in 1810, to 126,000*l.*, which is almost double the rental of 1795. It is divided among 350 proprietors, exclusive of feuars below 10*l.* Scots of valuation. Land, to the value of about a million Sterling, or nearly one third of the whole shire, has been transferred by sale within the last 40 years. Nevertheless, about 50,000 acres are held under settlements of entail, or nearly three-sevenths of the whole valuation of the county. The freehold property, with few exceptions, holds of the Prince of Wales, as Prince and Steward of Scotland; but two-sevenths have been feued,

and are held of subjects superior, for payment of a trifling quit-rent; though sometimes the feu-duty is so high as a boll of grain per acre yearly. Few of the proprietors occupy extensive parts of their estates; and in general the county is let in small farms. —Farms exceeding 100 acres of good arable land are but rare; and even in the highest division, the most extensive farms seldom exceed 400 or 500 acres. There are still many tenants who occupy only to the extent of 30*l.* or 40*l.*; and a number of small possessions under 20*l.* yearly. It is needless to add, that the accommodations in farm houses and offices must correspond to these diminutive farms, and that cottages for farm labourers are but seldom necessary; for upon all little farms, a preference is given to unmarried servants. As the establishment of villages and allotments of land, from portions of 20 acres downwards, have been recommended in the western counties of Scotland, we shall transcribe the observations of this author, whose constant residence in Renfrewshire, for more than 30 years, must give much weight to his sentiments concerning this mode of occupation.

'*Character of the Farmers.*—The farmers in this county are a 'frugal and industrious class of men. At no very distant period, 'however, they appear to have been grossly ignorant of their own 'interest. Indolence and indigence, prejudice against new customs, 'and attachment to old habits, seem to have obstructed every kind 'of improvement. Instead of trusting to the substantial profits that 'might have been derived from a vigorous and diligent culture, they 'considered extreme parsimony, and rigid economy, to be the sole 'means of procuring for their families the necessaries of life. They 'fared worse, and enjoyed fewer comforts, than labourers and me-'chanics. It must be remarked, however, that these observations 'are principally applicable to small tenants, who kept one or two 'horses, and which they wrought for hire during the greater part 'of the year. The smallness of their farms, (significantly described 'in the language of the county by the term *paffle*), and their want 'of capital to bring those small possessions into that complete state 'of improvement of which they were capable, seem to have been 'the causes of the depressed state of this class of men.

'But the number of these small tenants is now greatly decreased; 'and the condition of those that remain has been improved by the 'increase of population, and consequent rise in the price of agricul-'tural produce.

'The possessors of larger portions of land are more affluent and 'independent; employ greater stock in the cultivation of their 'grounds; are possessed of greater sagacity: and have always suc-'cessfully prosecuted better schemes of improvement.' p. 67, 68.

The average land rent of the county is probably about 18s. 3d.

per Scots acre; and, in general, the whole is now paid in money; though, so late as 1795, besides money payments, there were meal, hens, sheep, &c. and even services, such as ploughing, sowing, and many others exacted. Rent is extremely variable, both as the land is nearer or more distant from the populous towns and manufacturing villages of this and the neighbouring county of Lanark, and according to the different degrees of its fertility, which the author justly considers to be the chief cause of the difference of rents. Some of the poorest land is not above 5*s.* an acre; and the best is so high as even 7*l.*, for a few small lots. Five hundred acres, within two miles of Glasgow, were lately let at 2000*l.*; and, in 1807, '496 acres of fertile land, of 'the lordship of Paisley, lying near the town, accommodated 'with good roads, and in a favourable situation for manure and 'markets, with the privilege of subsetting, was let by public 'roup, in six farms, for 19 years, at 1909*l.*, or nearly 3*l.* 17*s.* 'per Scots acre.' The reader may compare this with the ridiculous accounts of 15*l.* and even 20*l.* per acre being paid for farms in some other County Reports. Patches of ground for nurseries or gardens, and for bleachfields, and also a few acres immediately adjoining large towns, are no doubt let at higher rents; but these are no more to be considered as a criterion of the value of land for agriculture, or when let in farms, than a quarter of an acre of land at Greenock, rated at 420*l.*, or small allotments for building, at 16,000*l.* per acre.

It is well known, that tithes are but lightly felt in Scotland as a tax upon property; and that they are in no respect a burden upon the occupiers of land, excepting perhaps in some of the Northern isles, where they are still paid in kind. Even in the few cases in which a proprietor cannot purchase his tithes, the following extract will show how much better arrangements, for the interest of agriculture at least, are made in the Northern than in the Southern division of the island.

'At the early period (1587) already mentioned, when the whole 'church lands and teinds in Scotland were annexed to the crown by 'act of parliament, such church lands as had been previously dis-'posed or granted to *colleges* and schools, were excepted; and after-'wards (in 1641) when an act was passed entitling heritors to value 'or purchase their teinds, the teinds belonging to colleges, schools, 'and hospitals, were prohibited from being sold, but might be va-'lued. The University of Glasgow are proprietors of the teinds of 'several parishes in the neighbourhood of that city. Their rights to 'tithes in Renfrewshire, extend only over the lands of Polmadie, 'Hags, Titwood, and Shields, in the parish of Govan; to the whole 'of the parish of Renfrew, which was anciently "a *parsonage and* "*dependency on the cathedral of Glasgow*;" and to some ground near

'the centre of Cathcart, said to have belonged to the same see. 'The teinds in this case are similar to the tithes in England; and 'the only difference in the situation of proprietors of ground in Scot- 'land, the tithes of which belonged to colleges, &c. &c. and of pro- 'prietors in England is, that the proprietor in Scotland, by obtaining 'his teinds valued under the act 1641, has it in his power to get 'these teinds fixed at a fifth part of the present rent; which teind- 'duty cannot in future be increased. This is a great and import- 'ant difference, and it uniformly produces a moderation on the part 'of universities in levying their teind, in order that the heritors may 'not be induced to have recourse to a valuation.

'The college of Glasgow were in use to allow the heritors to pos- 'sess their teinds on leases of nineteen years, renewed from time to 'time, on receiving a small modus in name of composition, and a 'small annual rent in money and grain; and we find that till with- 'in these last twenty or thirty years, few of the heritors of the pa- 'rishes, of which the college of Glasgow are titulars, obtained valua- 'tions of their teinds; but the rapid rise of rents, and the progress 'of agricultural improvement, since the separation of Great Britain 'from the American colonies, have had the effect of making most 'of the heritors value their teinds. It is but justice to remark, that 'the parties have been disposed to settle with each other in a fair 'and liberal manner. In several instances, heritors have got the 'teind fixed at 4s. per acre; and none of them, it is believed, pay 'more than 15s.' p. 73—75.

Assessments for the poor are not known as a charge upon land, excepting in two parishes, the Abbey of Paisley, and Kilbarchan; in the former of which they amount to about 4 per cent. of the rent, and in the latter to $2\frac{1}{2}$ per cent. This contribution is divided equally between the landlord and tenant, as is the case in all the landward parishes of Scotland, where any assessments are imposed. But it must not be thought, in so populous a county as Renfrew, and where more than three-fourths of the inhabitants reside in towns, and are employed in manufactures and commerce, that no other assessments are required; for the sum actually distributed to the poor is said to be probably not less than 14,000*l.*, or a ninth part of the whole rental of the county, besides private charities.

In the Section on Leases, we are informed, that 'many pro- 'prietors are now reducing the length of leases to ten or twelve 'years. In general, however, this happens when a renewal is grant- 'ed two or three years before the expiration of the former lease; a 'practice which is obviously beneficial to both landholders and te- 'nants; as the tenant, in this case, never allows his farm to get out 'of good condition; so that his profits continue steady; and he is 'enabled to pay a higher rent to the proprietor, than he could do, 'were he to commence with a run-out farm.' p. 81.

Upon this we shall take leave to remark, that 10 or 12 years

is much too short a period of lease, even in the best cultivated counties of Scotland—and, we should think, must be a very unwise measure in Renfrewshire; indeed more so for landlords than tenants, if it is expected that the circulating medium of the country shall ever be replaced upon its natural and only safe foundation. The immediate effect of a return to cash payments must be to diminish the extent of the circulation, and to raise the market value of any given portion of it in a comparison with farm produce, as well as most other articles. It will require much more corn to purchase a guinea then, than it does at present to purchase a bank note of the same denomination. But it is also an unwise measure, in any event, in a county where large investments of capital are necessary to bring the soil to its highest productive condition, which, there is evidence in the Report, must be the case in this county. The expediency and advantage to both parties, of renewing a lease two or three years before the expiry of the former one, are very justly stated; but we have some doubts if this can be safely done upon entailed estates, of which there is so large a proportion in Renfrewshire. In some instances, indeed, new leases have been sustained, when challenged by a succeeding heir; but only, so far as we know, from the date when they were understood to commence, and not from the date of the expiration of the former lease.

The *Covenants of Lease* seem to be quite as liberal as in other counties. 'Strict rules respecting the rotation of crops, and 'mode of culture, are seldom prescribed;' and in the case of seven farms near Paisley, let in 1807, 'the tenants, for the first 'fifteen years of the leases, were not bound to any particular 'rotation.' The tenants, however, 'are commonly bound to 'keep two-thirds of their farms in grass, so that the land may 'be pastured double the time it is ploughed.' There is one clause, indeed, which would be thought a very extraordinary one in several well cultivated counties. 'Where there are 'young hedges, the tenant is not allowed to keep sheep.' The proprietors of this county may surely know, that a good paling will preserve a young hedge, until it becomes a fence itself, from the Leicester breed of sheep, than which no animal would pay so well, and so much improve their pastures; and at the same time this breed, when its value had been once well ascertained, would lead to the general cultivation of sown grasses, and also of turnips over all the dry lands of the county. In the large towns of Renfrewshire, there could be no want of a market for fat mutton; and it is believed, the superior cultivation so necessary for rearing and fattening them, would still produce a full supply of milk and other dairy produce.

In the chapter on Implements, there is evidence of the little progress which improved agriculture has made in this county.

The Scots plough is still in most common use;—implements for the horse-hoeing husbandry are hardly known;—and there were but two or three thrashing machines in the county a few years ago.

'Some of the *churns*, it is believed, are peculiar to the county. 'Many are wrought by a lever in a manner similar to the working 'of a pump; in which case the churn is in a vertical or upright posi- 'tion, and the end of the churn-staff is connected with one end of the 'lever. But the most material improvement is the invention of 'churn-mills by the application of a water-wheel. The churn in this 'case is in the form of a hogshead, and lyes fixed in an horizontal 'position. The frame for breaking the milk is moved, with a mo- 'derate velocity, on an axis passing through the centre of the churn; 'while the churn itself remains at rest; and, to prevent the escape 'of the milk, the aperture for admitting the axis is small, and close- 'ly fitted. The whole apparatus is simple, and is similar to what is 'employed in a common corn-mill. The expense is small, and the 'advantage in saving labour great. The butter, in consequence of 'the equable and constant motion, is supposed to be of a better 'quality, and in greater quantity, than what is produced by the 'common mode. When water cannot be obtained, a horse might 'be employed.' p. 89.

This county is, in general, well enclosed; and it is computed that, in many cases, rents have been advanced 30 *per cent.* from that cause alone. Upon the inquiry, Whether enclosures have increased or diminished population? the author observes—'There are the strongest reasons to believe, that the numbers 'of the country part of the county have decreased;' but this he justly ascribes to the introduction and progress of manufactures, which have occasioned the resort of the *cottars* or farm labourers to towns and villages, rather than to enclosing. As the number of farmers has been also diminished, he thinks that enclosures may have contributed to this, by rendering large farms more easily managed. But, as he properly adds,—'This 'junction of farms, in the degree in which it has taken place in 'Renfrewshire, must be considered rather advantageous than 'prejudicial to the interests of the county.' It is certainly true, that none of the bad consequences which have been said to result from an enlargement of farms, have extended to this county.

This question may perhaps be best answered by putting another, in so far at least as respects the enclosing of arable land.—What is the management adopted before and after enclosing? If, before enclosing, the land is managed under a course of two crops and a fallow, and is afterwards laid down to permanent pasture, there must certainly be a diminution of the rural population. But if enclosed lands are kept under a rotation of white and green crops and pasturage, as is the general practice in

Scotland, there must result rather an increase than a diminution, even when compared with open lands constantly in tillage; for the cultivation of green crops, which cannot so well be conducted upon open fields, employs a number of hands that would not be wanted under the system of two corn crops and a fallow.

'The first or more elevated district of this county is chiefly 'adapted to pasture; and only a small proportion of the 'grounds is in tillage. In the middle and low divisions, the 'proportion in tillage is probably about one-fourth.'—Fallowing is practised but in a few cases; and the most common rotation in all the three divisions, is two successive crops of oats, and one of barley, followed by pasture, for a shorter or longer period, according to the capability of the soil to undergo a repetition of cropping. In the first district, grass-seeds are often withheld, and the land must find a cover of weeds and herbage as it may. There are, however, instances of better management; and it is to be hoped that these will soon become so numerous as to form the most common rotation; and that the most general practice at present, will, in a few years, be reported as exceptions only. The tillage lands are chiefly under crops of oats and bear, and potatoes and hay.—As plucking the blossoms from the potatoe crop has been recommended, we shall extract our author's observations on that point.

'There have been many trials of the effect of pulling the flowers 'or blossoms from the potatoe, so as to prevent the seed from form-'ing; and the result has been an increase of produce. One gentleman 'prosecuted this experiment with great care and attention, during the 'years 1803 and 1804, in fields of two acres each year, cultivated 'according to the usual mode, in drills, and planted in manure. By 'taking alternate portions of equal area in the same field; pulling the 'blossoms from some of these divisions, and leaving others to ripen 'the seed; attending in the autumn when potatoes were taken up, and 'measuring the produce with great care, he uniformly found, both 'years, the quantity increased 10 or 15 per cent. where the blossoms 'were taken off; there being very few small potatoes in these portions 'of the field. He also found the quality much improved in conse-'quence of the crop *ripening sooner than usual* where the blossoms 'had been pulled, and therefore not affected by the frosts, which often 'set in so early that the growth of the potatoe is completely check-'ed before it arrives at maturity. Having thus ascertained that the 'quantity and quality of the potatoe crop is much improved by 'pulling the flowers, he has continued the same practice for the last 'five or six years, on fields of from four to nine acres; and he con-'siders this experiment well worth prosecution to any extent. The 'blossoms are pulled by children from ten to twelve years of age, 'their wages sixpence per day, and the expense is about three shil-'lings per acre. About four acres of potatoes, from which he took 'the blossoms, in 1808, produced 65 bolls per acre, Renfrewshire

'measure. The same practice has obtained for many years among 'heritors in the Glen of Lochwinnoch; as stated by the late Mr 'M'Dowall, in a letter to the President of the Board of Agriculture; 'in which he remarks, that if it shall be ascertained by repeated 'experiments fairly made, that *potatoes ripen sooner when the flowers 'are taken off*, this consequence of the practice must be more valu- 'able than the increase of weight.' p. 103, 104.

Among the crops not commonly cultivated are turnips and Ruta baga. The soil of the middle and low districts is said to 'be too stiff for that kind of crop; and in the higher district, 'the farmers are *prejudiced* against turnips, it being a general 'opinion among them, that the crop following turnips, is far in- 'ferior in bulk and quantity to a crop succeeding potatoes.' We believe they are right, as these crops are managed by them; and it would be very idle to contend against an opinion which can be so easily brought to the test of experience. Every farmer may know with certainty whether he has a better crop after turnips or potatoes; yet it would be very strange, if, upon suitable soils, there is so remarkable a difference in the effects of turnips and potatoes in the western and eastern counties. In the former, the management of a potatoe crop is generally excellent, and that of a turnip one slovenly in the extreme. The best dung, and the best land, are universally allotted to potatoes; and it is only the worst of both that falls to the turnip-crop, which is considered as merely a little better than no crop at all. The subsequent management is of the same description; and if they should happen, notwithstanding this, to form large roots, it is so much the worse for the land and the ensuing crop: the holes, from whence the roots were taken, form stagnant pools for receiving the rains of winter, as the land is not generally ploughed till spring. The practice of the eastern counties is so well known as to need no description. It is very different, both in the preparation of the land, the manure applied, and the subsequent management of the crop—but particularly in the *consumption* of it. In all the turnip counties, a large proportion of the crop is consumed on the ground by sheep, and never by cattle, as has been done in some instances in the western counties. In this way the land receives all the benefit from their manure that was of such importance under the old system of folding them on outfield pastures, while at the same time a part of the crop is conveyed to the feeding byres and straw-yards, where it enlarges and enriches the stock of manure. If the Renfrewshire farmers will try this method, and if they do not reap a luxuriant crop upon their turnip fields, it may then, and not till then, be concluded, that there is something in the soil or climate of the dry land of the western counties, that renders turnips an unprofitable crop. If fallowing is so little practised upon the clays, and turnips so little cultivated on the dry

lands of this county, a volume could not have better elucidated the very imperfect state of its husbandry in all the various departments of crops and live stock.

About 12,000*l.* worth of lime is applied as manure throughout the county, exclusive of the expense of carriage. The price is 16s. per chalder of 16 bolls, the boll containing from four to five Winchester bushels of slacked lime; and the quantity per acre is commonly six, seven, or eight chalders. It is spread for the most part on pasture grounds, from six to twelve months before breaking up. Dung is sometimes applied, and, it is said, with success, to grass-grounds, at the rate of 40 carts per acre; the price of which at Glasgow and Paisley is from 4s. to 6s. per cart.

'Woollen rags, soapers' waste, soot, and shavings of horn, are 'applied as manure, but not extensively. The first of these articles 'is purchased in Glasgow and Paisley, in small quantities, at about 'four guineas per ton; and about 15 cwt. is considered as perfectly 'sufficient for manuring a Scots acre. Soapers' waste, consisting 'of a mixture of kelp and lime, at present sold at 8s. per ton, is 'very successfully used in forming composts, by mixing it with 'earth from ditches, sides of highways, and spots of vacant land.' —'Mr M'Dowall, in a communication to the President of the Board 'of Agriculture, observes, that "the heritors in the Glen of Loch-"winnoch have, for a hundred years, mixed peat-moss with dung, "one-half of each; and have found that the same quantity of this "mixture produced an equally good effect with a similar quantity "of dung." p. 134, 135.

In the Chapter on Live Stock, we are informed, that, 'throughout all this county, the dairy is of great importance. 'In the Upper District, it is the chief object of the farmer's 'attention.'—'The produce is sent chiefly to Glasgow, Pais-'ley and Greenock, in butter and butter-milk.'—There are at 'present but few *cheese dairies* in the county.' p. 143.—'A 'practice prevails, in some parts of this county, of letting cows for 'the whole season. The owners of the cows provide them with 'good pasture, and the persons who hire them pay a sum of mo-'ney for each cow during the year. In the year 1795, the rate 'was 6*l.* or 7*l.* for each cow; the present rate is 13*l.* or 14*l.* A 'good cow produces from 10 to 12 Scots pints per day; that is, 'from 4½ to 5¼ gallons, wine measure, during the prime of the 'season. But the average quantity may be stated at 7 Scots pints, 'or 3 1-8th gallons, wine measure, per day, for six months in the 'year. The average quantity of butter may be stated at 3 lib. 'trone weight (of 22½ oz.) or 4½ English pounds per week, for six 'months.' p. 144.

According to this statement, the average produce, per cow, besides the calf, worth about 10s., and taking the *highest* price of butter at 7*l.* 19s. per cwt. (p. 171.), and of butter milk at 1d. per Scots pint, will be about 13*l.* yearly. Even this

sum, though much below what has often been stated, affords a clear proof of the importance of the dairy in this county, and the value of its breed of cows; for there cannot be much said for the management and feeding of them.

'The cows are fed in the house through winter, but are generally allowed to go out for a few hours in the forenoon. The practice of keeping the cattle constantly in the house through winter is gaining ground, for the sake of the manure, and to prevent poaching. During the winter months their food is oat-straw, with a small allowance of potatoes, boiled with chaff or chopped straw. As the calving season approaches, their food is improved; hay is substituted for straw; the quantity of potatoes is increased; weak grain, meal seeds and dust, and on some farms beans broken in the mill, are added to the boiled meat,—the farmers now generally finding it to be much for their interest to keep their cattle in good condition. In summer they are pastured on fields sown down with perennial ryegrass and white clover.' p. 144, 145.

'A two-year old quey, or young cow, generally produces a calf in the month of June or July, though at the age of only 24 or 25 months.' p. 146. We should rather think the author may have been misinformed on this point. The earlier maturity of some breeds of live stock, and particularly very high feeding, enable the dam to produce its young at an earlier period of life, without injury to itself or its progeny; but this we should not suppose to be the case with these dairy cows; and, in general, it may be considered as an unprofitable practice to permit animals to copulate until they have nearly attained to their full growth.

But a few cattle are fattened in the county; and at least four-fifths of the calves are sold to butchers as soon as they are dropped, though a few of them also are fattened in places remote from towns.—No great attention is paid to sheep; and their number is inconsiderable.—It is here natural to ask, how the population of this county, stated at near 100,000, obtains a supply of butcher meat? We shall soon find, that, both for this and for grain, this county depends upon distant supplies. It must be fed by that very class of men which is here placed so far in the back ground; and when food is high, and the produce of its labour in little demand—when its manufactures cannot be exchanged for the produce of the soil of this country or of foreign parts, a great portion of this population is unemployed, and must endure the severest privations.

As Merino sheep are but little known in Scotland, we shall give a long extract respecting those imported by Colonel Downie.

'The only new breed introduced into Renfrewshire has been recent. Colonel Downie of Paisley, then in Spain, sent into this kingdom, at midsummer 1810, 1000 or 1200 *pure Merino sheep*,

'about one half of which were landed in this county. They were 'kept on dry, sound pasture, on the farm of Brownside near Pais-'ley, and at Millbank or Park of Erskine, under the care of four 'Spanish shepherds, who brought along with them the large sheep 'dogs, necessary in Spain to protect the flocks from the attacks of 'wolves. These sheep were certified to be of the true Paular breed, 'from the flock of the Prince of the Peace. The rams are all horn-'ed, the ewes polled, and their feet and head are as clean and free 'of wool, as the Highland and the Cheviot sheep, to which breed 'the ewes have a resemblance; only they have on the forehead a 'small circular tuft of wool.

'On the 15th of August 1810, Sir John Sinclair inspected Mr 'Downie's flock of Merino sheep, kept at Brownside near Paisley, 'and afterwards drew up a communication regarding them, to the 'Board of Agriculture, in the following words.

"The sheep in question left Lisbon on the 10th of July 1810, "and they were landed at Port-Glasgow on the 6th of August fol-"lowing. During the voyage fourteen rams and four ewes died: "But on board of another ship, having also a cargo of sheep, which "sailed from Lisbon at the same time, and reached Port-Glasgow "six days sooner, only eight rams and four ewes died,—the vessel "being larger, and the sheep having more air. Since they landed, "up to the 21st August, twelve rams and five ewes, of both car-"goes, have died; and about seven more of both flocks are likely "to follow them. During the voyage, they were fed on barley "and hay; and care was taken to keep the water put on board "for them at Lisbon as fresh as possible. The best time to import "Merino sheep into this country is, when the weather is the most "likely to be dry and warm on their arrival here; and they ought "to be brought over in large ships, affording them room and air.

"The ram, in a good season, will produce about twelve pounds "of wool; the ewe, having had a lamb, about five pounds; hav-"ing had no lamb, about seven pounds; the wedder about nine "or ten pounds. The wool was formerly worth only about two "shillings per pound; but of late years the price has doubled. "The sheep are fed on the mountains of Estremadura in winter, "and on those of Leon in summer. Those imported by Mr Dow-"nie are of the Paular breed, which formerly belonged to the Prince "of the Peace, or Godoy. The reason of their change of pasture "is, to avoid the excessive heat of the south of Spain in summer, "and the cold of the northern mountains in winter. This change "of climate preserves, it is believed, the health of the sheep, and, "consequently, the fineness of the wool.

"In Spain, there are many rams without horns, and they could "as readily be got over as the horned. The Spanish shepherds, "who attend Mr Downie's sheep, have seen flocks of rams without "horns; and think that they are in every respect equal to those "having horns.

"The diseases to which the Merino sheep are chiefly subject 'are, 1. what in Spanish is called *La Rona*; a disease on the

" skin; and, 2. what the Spaniards call *Convalencia*; which ap-
" pears in a tumour or swelling under the chin. This is caused
" by bad grass, or bad water, or by feeding at night, which is reck-
" oned a very bad practice. This disease is incurable. The speci-
" fic cure for the Rona is the *black oil*, a substitute for which, is wa-
" ter in which tobacco has been boiled. The Merino sheep are al-
" so liable to the *foot rot*. It is caused by the sheep feeding or
" sleeping on wet or damp ground. The remedy is the same, black
" oil, which is called in Spanish *Miera*. It is extracted, the shep-
" herds know not how, from a tree called *anevro*, which, from their
" account of it, seems to be a species of fir. The oil may probably
" be procured from Cadiz, although at some distance from the sheep
" country. The shepherds do not know whether it be used for any
" other purpose, but for the diseases of sheep.

" The Spanish shepherds, as far as they can judge, are of opi-
" nion, that the Merino sheep, under a careful and intelligent shep-
" herd, would thrive in Scotland. By an *intelligent* shepherd, they
" mean one who is acquainted with the various diseases to which
" the Merinos are subject, and with the cure of those diseases; and
" who also knows the proper pasture, which should be dry, consist-
" ing of natural, rather than of sown grasses, and free from no-
" xious herbs. By a *careful* shepherd, they mean one, who not on-
" ly leads the sheep to a proper pasture, *but who every day examines*
" *them one by one*, and is thereby enabled to arrest, in its beginning,
" any of the diseases to which they are subject: He must also pay
" the most assiduous attention to his flock, both night and day,
" during the time the ewes are lambing. With no more care than
" what is bestowed on sheep in the west of Scotland, they appre-
" hend that many of the Merinos would die before Christmas.

" In dry hot weather, salt is given to the Spanish sheep. It is
" given well pounded, and sprinkled on the plain surface of some
" stones, which the sheep lick with their tongues. It serves to
" strengthen and fatten them. In Spain, the rams are put to the
" ewes in the month of July,—ten or twelve ewes to a ram. If a
" shepherd has under his care one hundred rams, and as many
" ewes, he selects about ten of the best of the former, and allows
" them to be with the latter for a month or so.

" The shepherds spoke highly of the Spanish mutton, and said,
" though not so fat, it was higher flavoured than any they had seen
" in Scotland."

' In the autumn, Mr Downie sold by auction about 200 ewes and
' about 50 rams, at two sales, and obtained, at an average, about
' 10*l.* for each ewe, and about 15*l.* for each ram. Some of the best
' rams of the flock were sold at twenty-six guineas, and some of the
' finest ewes brought 18*l.* As this flock was sold in small lots, they
' are spread over the country, and it is hoped will thrive in Scot-
' land, either in their original state, or by being judiciously crossed
' with other breeds.

' Mr Downie has still a part of his flock on the lands of Millbank,
' or Park of Erskine, under the care of one of the Spanish shep-

'herds, consisting of 5 rams, 43 ewes, and 34 lambs. The diseases mentioned in the foregoing communication, by the President of the Board of Agriculture, particularly the *foot rot*, which is cured by British oil, an article which seems to be an extract from tar, or from some resinous tree, continued to prevail during the winter, which was uncommonly wet and stormy, and several rams and a very few ewes died: But the flock seems to prosper; and among the lambs, which are healthy, there have been very few deaths. The sheep were kept in the night in a good covered shed during winter, and their food was small quantities of hay and barley. The Spanish shepherd was particularly careful of the ewes and lambs: The lambs were dropped very early in the season, and consequently required much attention.' p. 148—153.

The second section of the Fourteenth Chapter contains several very useful tables, which exhibit the prices of butcher meat and grain, and also of hay and butter, at different periods. Oatmeal is said to be, in general, about 3s. 6d. per boll higher in this county than in Berwickshire. Butter is lower than in Liverpool and Cheshire. 'The advance of prices has taken place chiefly since the year 1795. This will appear from the following Table, specifying the rate per cent. of advance on grain, &c. and the proportion of rise on each article during separate periods of fifteen years.'

TABLE of the Rate Per Cent. of Advance on Farm Produce.

	Rise from 1781 to 1795.	Rise from 1796 to 1810.	Total Rise in Thirty Years.
Oatmeal	31 per ct.	61 per ct.	92 per ct.
Oats	42 —	56 —	98 —
Wheat	57 —	45 —	102 —
Barley	62 —	50 —	112 —
Beans and Peas ..	59 —	93 —	152 —
Hay	50 —	95 —	145 —
Butter	37 —	100 —	137 —
Beef and Mutton .	44 —	100 —	144 —

There is another table which gives an idea of the consumption of butcher-meat in the town of Paisley.—'The market is 'supplied with cattle from the counties of Angus, Fife, Lanark, and Ayr.'

Though we have yet gone over less than a half of this Report, there is, in what remains, but very little of agriculture. The 15th chapter, which occupies nearly as many pages as all the preceding, is divided into nine sections, under the following titles.—Roads, Bridges, and Ferries; Canals; Fairs; Markets; Weights and Measures; Commerce; Manufactures; Poor and Population.—The author seems to be well acquainted with all

these subjects, and has collected a great mass of very valuable information, concerning the origin and progress of the manufactures of the county, which renders this part of the work exceedingly interesting. It is perhaps not the less so to the greater number of readers, that it is more distinguished by minuteness of research, than by general reflexions; some of which, however, cannot fail to present themselves upon a careful perusal, and a few of them to excite feelings of regret. It exhibits a huge and splendid superstructure, reared on a foundation so insecure, as to expose it alike to destruction from the hostile policy of foreign nations, and the ever-varying caprice of fashion in our own. It has experienced severe shocks from both these quarters at different periods, and never more than from the former of them at present. It will be fortunate for this county, and for the nation at large, if, taught by afflicting experience, a greater part of the population shall in future employ their capital and labour in the cultivation of the soil, the produce of which is of indispensable necessity at all times, and for which there must, for many years to come, be an ample demand, altogether independent of the hostile combinations of foreign nations. It is certainly a dangerous policy, (and it is carrying the subdivision of labour to a degree far beyond the limits of prudence), which would form Britain into one large manufacturing and commercial establishment, and leave the means of subsistence to be supplied by the industry, and to depend upon the artificial wants, of other countries.

After a very distinct view of the different manufactures of the county, and of the fluctuations and decline of some branches, and rise and progress of others, the author gives a summary, in a very candid manner, in the following terms.

'*Effects of Commerce, &c.*—Some of the effects of the extensive 'commerce and manufactures of this county have been already noticed; but it would be improper to dismiss this subject without examining its different bearings, and the advantages and disadvantages 'which have arisen, or may arise, from trade of such magnitude and 'so much varied, as that which has been here detailed.

'The effects on the maritime and financial interests of the nation 'are obvious. The number of registered vessels belonging to Port-'Glasgow and Greenock is 538, the tonnage 67,859, and number of 'seamen 4983;—seamen who are accustomed to voyages to remote 'countries and on dangerous shores. Those sea-ports must therefore 'be allowed to hold a very considerable rank among the maritime 'towns which nurse that hardy race of men who maintain our national naval superiority. The effect on the finances is no less obvious. 'From the great increase of population there is a consequent augmentation of the public revenue: of this the direct taxes in this county, 'compared with those in counties of much greater extent, where commerce and manufactures do not exist, affords a complete illustration. 'The revenues from excise and customs, when brought into one view,

'show the national importance of the commerce and manufactures of 'this small district; and, though they are not derived exclusively 'from the inhabitants of this county, yet, as they are collected with- 'in its bounds, they may with propriety be added to the more direct 'taxes, so as to exhibit in one sum the amount raised in the county of 'Renfrew, for the public service.

	L.	*s.*	*d.*
'*The revenues from*			
'Customs, - - -	796,462	9	5
'Excise, - - -	306,376	11	0
'Post-office, - - -	9,580	13	3
'Property-tax, - -	33,381	4	9
'Assessed-taxes, -	15,342	18	9
'Land-tax, - - -	742	2	5
'Militia assessment,	415	0	8
	1,162,301	0	3

'With regard to the influence of commerce and manufactures on 'agriculture, it is certainly favourable. Manufacturing and commer- 'cial towns, by creating capital, furnishing manure, &c. contribute to 'the improvement of the adjacent country; and the land owner not 'only derives income from every production of the soil, but also with 'ease realizes a very considerable revenue from the mines, lakes, 'shores and rivers. Trade and manufactures have introduced a great 'degree of wealth; and, by increasing the number of inhabitants, 'have ensured to the farmer a ready sale, and a better price, for such 'articles of farm produce as cannot be imported from a distance; cir- 'cumstances clearly proved by the tables of prices of provisions al- 'ready given. They have also considerably advanced the rents of 'landed property, as may be easily inferred from what has been stat- 'ed relating to the great towns of Paisley, Greenock, &c. And 'merchants and manufacturers have given an example of industry 'and attention to business, which may have operated on the class of 'farmers, and roused them to new exertions.

'But commerce and manufactures have, no doubt, been attended 'with some disadvantages to the farmer and the land owner. They 'have advanced the price of labour; may have occasioned a greater 'degree of dissipation among the lower classes; increased the num- 'bers of the poor; and, what is of chief importance, they have di- 'verted the attention and the capital of the county from the import- 'ant operations of agriculture. Men of ability and capital sufficient 'for extensive improvements, seldom devote themselves to the cul- 'tivation of the ground; and the important business of the farmer 'has been left, in many cases, to the lower classes of the community, '—to persons deficient both in means and in skill.' p. 283—287.

We shall conclude this article with one or two remarks on the subject of the preceding statement.

In the first place, it is natural to inquire what is the condition of the great body of this population, which is said to have quadrupled within the last 57 years. It has been already noticed, that the rural population has diminished: this increase must,

therefore, be wholly attributed to manufactures and commerce. Of the total population of the county, stated at 92,596, the number residing in towns and manufacturing villages, is 72,317, and in the country 20,279; the towns of Paisley and Greenock containing more than a half of the whole (p. 341.) The *income* of the labouring class of manufacturers (who must form a large proportion of the population) is given in the following words. 'The weaver is often laid idle for want of employment: there is 'always a loss of time when he is preparing his web, or putting it 'into the loom; and, when those deductions are taken into view, 'and the ordinary rates computed, he cannot count on a steady average income, so high as that of a mason or carpenter; probably 'not above 3s. per day. In bad times, as of late, his wages do not 'exceed 9s. or 10s. per week; a painful circumstance to him and 'his employer. The regulating of wages between master and servant, adjusting their respective interests, and deciding on their different claims, are nice and delicate matters. The late and present 'low prices of goods, with limited sales, and the consequent reduction of the rates of labour, are circumstances most deeply felt and 'lamented by all classes.' p. 258, 259.

With this income they have to purchase provisions of all kinds, at a much higher price than that of other counties. Oatmeal at 3s. 6d. a boll more than the Berwickshire price; and wheat and other kinds of grain, and also dairy produce, at a still greater advance. The consequence of this diminished income, and augmented expenditure, must be obvious, and may be easily perceived, not only from the numbers of the poor, and the large sum that is distributed for their relief, but also from the extreme indigence of the lower classes generally, of which this Report exhibits a very striking instance. In one parish we are told, that 'of at least 1500 persons among the working 'classes assessed in 3s. each, not above one-third of their number make payment; and many of these not till compelled by 'legal means.' (p. 303.) 'If the demand is enforced, they are 'reduced to the state of paupers.' p. 307.

2d, It may be true, that as Renfrewshire contains more than three times the population of Berwickshire, the direct taxes are somewhat greater; though the table presented does not exhibit a very convincing proof of this.—But what does this fact establish, or to what result does it lead?—Merely that the state derives a greater revenue from manufactures and commerce concentrated in a single county, than from the agriculture of another and larger county which has neither. But then, does not this and other agricultural counties contribute indirectly to these taxes, by the consumption of the manufactures from which they are immediately levied?—not to the revenue of the customs and excise only, but also to the *direct* taxes of the county—to the property-tax of the merchants and manufacturers for instance—

and also to that of the owners of tenements. Even these direct taxes, so far as they are not paid from the land, and the manufactures consumed within the county, must be collected not only from the other counties of Britain, but, in part, from distant countries. Besides, to obtain the revenue from manufactures and commerce, almost five millions of property must be annually transferred to foreign, and perhaps hostile nations, for food to those who are employed in realizing it, over and above what is paid for the raw materials of manufacture; and this expense must be incurred, even though these manufactures should not be received in payment, but should remain at home locked up in warehouses, or be burned upon the shores of our enemy. So far as manufactures have increased population beyond the means of subsistence, and when they cannot be exchanged for food with other countries, it is quite proper, when their importance in a financial view is urged, to place against the amount of the revenue derived from them the sum that must be paid to other nations from other sources of revenue, or from the capital of the country for the support of that population.

3*d*, Manufactures and commerce have certainly been favourable to agriculture generally, and that in a very great degree. It is also true, that they have had the effect of encouraging the agriculture of a small circle around their establishments, by affording a ready market for produce, and by contributing manure. But, beyond this, we do not see, in this and other manufacturing counties, any evidence that their local influence has been beneficial to agriculture, but the reverse. If we shall imagine a numerous manufacturing and commercial population, set down in an uncultivated district, but possessing every facility of water-carriage, a narrow tract in the immediate vicinity will indeed be employed, in raising such articles as cannot be brought from a distance, chiefly roots and artificial grasses, for supplying milk, vegetables, and hay; but butcher-meat will be brought from a considerable distance; and grain, instead of being raised at home, will be imported from all the places with which they trade, either in their own or in foreign countries. Thus, within a very few miles of a large town, the monopoly of the home farmer entirely ceases; and at a little farther distance, he has not even the slightest preference in the market, to which grain is brought from a great distance, at a very trifling expense, by water-carriage. Accordingly, the higher prices of grain in the manufacturing counties of the west of Scotland, than in the eastern agricultural ones, are not perceived to have encouraged cultivation in the former, even though it appears, from this Report, that the annual importations into the Clyde, and by the Forth and Clyde Canal, must considerably exceed half a million of pounds Sterling.

4th, On the other hand, the disadvantages which the agriculture of this county experiences from the direction of its capital and labour, almost exclusively into the channels of manufactures and commerce, are real and apparent. 'Men of ability 'and capital seldom devote themselves to the cultivation of the 'ground.' How far this direction is encouraged by superior profits, it may not be easy to determine, as the experiment seems never to have been made in this county. That it has been promoted by injudicious and illiberal restrictions upon the cultivators of the soil, imposed not only by many proprietors, but by the laws of the country, cannot well be doubted. A man who has an opportunity of employing a moderate capital in manufactures and commerce, can never be expected to invest it in the improvement of another man's property, from which he cannot withdraw it at pleasure;—in improvements, the value of which he cannot obtain in one sum by a transference of his lease, nor even in yearly instalments by substitution;—and which, after his death, is entailed upon his heir at law, without permitting him the power of destination or distribution. To shackle agricultural enterprize to the utmost, only one fetter more was wanting—to prohibit agriculture from obtaining the assistance of capital from other professions; and that has been supplied by the conditions of several late leases, by which the property of creditors, as well as of the farmer, is declared to be forfeited to the proprietor, if from any cause the farmer is himself incapable of continuing the management of his farm. Would any branch of our manufactures have prospered under similar restrictions?

Lastly, It may be truly affirmed, that the foundation of the independence and prosperity of a nation, possessing an extensive territory, should be laid in the production of food, and the materials of such manufactures as are of indispensable necessity to the comfort of its inhabitants. The edifice may then be reared to any height which the foundation will support, by the valuable industry of the manufacturing and commercial classes. When the labours of the agriculturist and manufacturer are applied in just proportions, they must not only benefit each other, but all the other classes of society which spring up in the progress of civilization and wealth; and their united exertions will feed and employ a gradually augmenting population, that may laugh to scorn both the open assaults of hostile powers against our territory, and the still more dangerous combinations against our manufactures and commerce, which are unfortunately considered at present to be the chief sources of our power, and even the only means of ensuring to us the very necessaries of subsistence.

ART. II. *The Substance of a Lecture delivered at the Free-Masons' Tavern, in the presence of the Royal Dukes of Kent and Sussex, the Duke of Bedford, and many other distinguished Friends of Agriculture and their Country, on the 2nd of 6th month* (*June*) 1812. By Joseph Lancaster.

THE name of Mr Lancaster, the high rank of his audience, and the mighty promise held out in the advertisement which announced this Lecture, were calculated to raise our curiosity to a very great pitch; but seldom has disappointment been greater, —never was the gratification of curiosity attended with less pleasure, than on the present occasion. As our readers may wish to know what such a man as Mr Lancaster has recommended for the purpose of increasing food and employing the poor, and what sort of Lecture royal and noble personages have listened to, we shall give a very short account of this extraordinary performance.

Concerning the motives which led Mr Lancaster to apply his mind to agricultural subjects, and to give his ideas on them to the public, there cannot be any difference of opinion. His arduous and successful exertions in another department, afford indisputable proof of his benevolence. In this, too, the merit of originality certainly cannot be denied him, even by those who dispute his claim to it in the other. The only question then must be about the utility and the practicability of a theory which he thinks 'of the utmost national importance,' and which will 'largely contribute to employ our poor, to alleviate 'the misery and want of our manufacturers, and to support our 'population.'

Mr Lancaster having observed, that the superficial contents of a mountain much exceed those of the area on which it stands—and that some mountains are cultivated or clothed with verdure up to their very summits,—recommends, that we should imitate Nature, and add to this extension of superficies, by raising hills, though at first upon a smaller scale, by human labour. 'In reducing this plan to practice, the farmer may choose an 'elevation of three feet in fifteen,' and thus there will be '*one-fifth gain;*' for a ridge containing a breadth of fifteen feet elevated three feet in the middle, above the level, may very easily stand upon a breadth of only twelve feet. When land has been formed into this, or any similar undulating surface, 'the elevation may be 'kept up by ploughing.' 'The stones, which are often clear-'ed away at a great expense, may be buried on the spot, to in-'crease the elevation;' and thus, in a few centuries, perhaps,

we may have artificial hills, as high, and as valuable too, as the loftiest that have been formed by Nature.

There may be some doubt about what seems to be taken for granted—that every such extension of surface will give a corresponding increase of produce;—but Mr Lancaster has established the point, of increased vegetation at least, in regard to potatoes, peas, and beans,—as 'ten potatoes actually grow on 'the elevation of two feet, on a base of eight, while only eight 'grow on the length of the base.' If it should also be objected, that the hollow places from which the soil must be carried to increase the elevation, might be somewhat sterile, and rather too little exposed to the atmosphere, the answer is obvious;—it is well known that some of our most valuable plants require neither light nor soil. It follows, therefore, that the extension of the surface will be promoted in an equal degree, by sinking valleys far below the present level, and by raising hills above it.

The most serious difficulty seems to be, that a good deal of time and labour must be required to form the plains of England into hills of any decent size. But this may be obviated, when it is considered, that we have enough and to spare of them in Scotland, which we should think may be purchased upon very reasonable terms, provided delivery takes place on the spot; the buyer incurring the expense of carriage, and bringing with him as much good soil as will cover the area a few inches deep. It is well known, that the people of London have to send to the north of Scotland for rocks, and to purchase them on the ground at 50*l.* per acre and upwards. This expense would be greatly diminished, by transporting them in their natural position, in the heart of a good sizeable mountain, which might be set down in the suburbs, the stones taken out as wanted, and the remainder applied with great advantage to extend the surface of England. Every schoolboy knows, that mountains have not only been removed, but even heaped one above another, by artificial means—'*fratres—Pelion impossuisse Olympo*;'—and what *has* been done, may certainly be done again. What a diminutive figure will the elevation of the Green Park, or of Hyde Park, make, when our noble Benevis shall be set down beside them! A mountain 5000 feet high, gliding along the German Ocean, looking down with contempt on the coasts and petty hills on its voyage, and arriving in safety at the British metropolis, would exhibit a very interesting spectacle.—We shall be glad to know, that these humble and respectful hints meet with the approbation of Mr Lancaster, and the royal, noble, 'and other distinguished friends of agriculture and their coun-'try,' to whom this Lecture was addressed.

BRANCH III.

Agricultural Intelligence.

The weather, during the last quarter, was exceedingly favourable until within these few days; and vegetation is much earlier than at the same period last year. Markets, which were steadily high, have declined of late for grain, and advanced for fat stock; so much so, that Butcher meat is fully as high as it has ever been known. The deficiency of the Turnip crop in some districts has been well supplied by the forwardness of young grasses. Potatoes are still in abundance; and there has been no scarcity of fodder.

The Wheat sown in autumn has a very promising appearance, and, until the check which it experienced from the withering east winds, towards the end of last month, was in some instances even too luxuriant. The spring crops have had all the benefit which could be expected from a favourable seed-time and rapid vegetation. Potatoes have been planted to a great extent; and the land intended for Turnip and summer-fallows could never be wrought to better advantage.

The late depression of prices, or rather perhaps stagnation in the corn trade, seems to have been chiefly occasioned by immense importations from Ireland, and the expectation of supplies from the Baltic. The quantity of Irish grain brought into the Clyde and the west of England, has been greatly above what is imported in ordinary years; and the consequence has been, a reduction of price even below that of several of the Eastern agricultural counties, and, at the same time, a considerable accumulation of stock in the hands of the corn merchants of Liverpool, Glasgow, and other places on the west coast. In the Eastern counties, there is supposed to be little grain in the stores of the corn-dealer; but then the stack-yards are not more exhausted than they usually are at this period, and not nearly so much as they were at this time last year. These considerations both serve to account for the late decline of prices, and to banish every apprehension of scarcity. But still it must depend upon the continuance of importations from Ireland, or the importations expected from the Baltic,—and also on the progress of the ensuing crop,—whether prices shall continue to sink or advance during the summer months. If there shall be no considerable importations from foreign parts, it will be evident that an average crop is not so inadequate to the consumption of the United Kingdom as has been generally imagined,—when economy has been enforced by high prices; for of the former crop there was certainly very little on hand, when the last began to come to market.

Notwithstanding that cattle and sheep for grazing are uncom-

monly high, the rent of grass parks has not given way, but rather advanced. Perhaps, owing to the prices of last crop, arable farms may have also been let at rents that could not have been obtained at any time within the last three or four years. It is certainly imprudent, however, to expect a continuance of such prices, either for corn or live stock.

It is said to be in contemplation to alter the rates at which foreign corn is allowed to be imported; and, unless they are raised considerably, there is reason to believe that the present rents could not be paid in the event of peace. The prices of the last crop seem to prove, that importations have a much greater influence upon the price of British grain than has been admitted by some late writers; and the effect of such prices must be, to extend correct cultivation and convertible husbandry, and, by these means, to produce a supply fully adequate to our consumption, notwithstanding all the obstructions of modern policy. But this natural effect, the progress of which is already perceived, must not be interrupted by giving an undue preference to the foreign cultivator, or by admitting him to compete with the British farmer upon such terms as must compel the latter to return his lands to pasture; and to leave the necessary supply of grain to be furnished by those who have not such high rents, taxes, and expenses of labour to discharge. In the latter case, the wealth of the nation must continue to be employed in the cultivation and improvement of every country in the world, Britain itself alone excepted; and its inhabitants, the number of whom is rapidly increasing, will be still more and more exposed to the severest privations, whenever the seasons are unfavourable, and foreign markets rendered inaccessible by hostile combinations.

The following communication has been sent by a correspondent; and as the subject of it is interesting, it is inserted without alteration.

'TURNPIKE JURIES.

'*Court of Session, Second Division, January 27th*, 1813.

'The Court gave judgment in the following matter.—Certain 'tenants in the county of Banff having claimed damages from the 'Turnpike Trustees, for the loss of ground and other injuries occa-'sioned by the construction of a new turnpike road, the Sheriff re-'mitted in common form to a jury; and this jury returned a ver-'dict, finding, that any damage sustained by the tenants was com-'pensated, by the benefit arising to their farms from the turnpike 'road; and therefore finding only nominal damages of one pound 'in one case, one shilling in another, (and so on), due to the indi-'viduals respectively. Of this verdict the tenants complained by 'bill of advocation, when appearance was made for the Trustees, in 'name of their Clerk and Treasurer, who pleaded, first, That the 'verdict was substantially right and legal; 2dly, That at all events, 'it could not be competently challenged by process of advocation, 'that form of process being expressly excluded by the statute.

'The Court were unanimously of opinion, 1st, That the verdict 'was most unjust and illegal; and, 2dly, That it was brought under their revision in a competent form.

'As to the former of these points, their Lordships held it to be 'clear, that those juries are only empowered to appreciate the true "value and amount" of the property of which the landlord or his 'tenant has been deprived, and not to try questions of right, or of 'hypothetical and contingent benefit; in other words, that the Jury 'are mere valuators for ascertaining the extent of the loss sustained, 'without any regard to possible future benefits arising from the introduction of a turnpike road. Their Lordships considered the 'power of the Legislature to take the property of any man and 'convert it to another use, as the most delicate and serious that can 'be exercised, and a power which cannot be exerted without assurance to the sufferer that his loss shall be fully compensated; and 'they further held, that, in this particular case, there was the clearest evidence, on the face of the verdict itself, to show that the 'Jury had exceeded its lawful powers.

'In regard, again, to the form of review—Their Lordships were 'of opinion, that whenever the Sheriff or the Jury travels beyond 'the statute, the common law remedies are then open to the parties 'aggrieved, by application to the Court of Session, as supreme in 'all civil matters in this country. Their Lordships, at the same 'time, expressed their particular dissent from a proceeding, whereby the objection stated by the Trustees to the receiving of evidence 'in presence of the Jury, as offered by the complainers, had been 'sustained. The Court were decidedly clear, that it is the duty of 'the Sheriff to admit, and the indispensable duty of the Jury to 'listen to, whatever evidence regarding the question of "Value" 'before them, the parties are disposed to adduce; and that a refusal 'from either quarter to receive such evidence, affords a sufficient 'ground for challenging the verdict.

'The Court therefore, on the whole, passed the bill of advocation, in order that the complainers might obtain from a Lord Ordinary their redress against the Trustees, in such shape as to his 'Lordship should seem proper.

'Counsel for the Tenants—DAVID CATHCART and JAMES GORDON, Esquires; agent Mr JAMES PEAT. Counsel for the Trustees—JOHN CLERK, GEO. CRANSTOUN, and T. H. MILLER, Esquires; 'agents Messrs INGLIS & ROBERTSON.'

Aberdeenshire Quarterly Report.

'SINCE the middle of February, when the frost went off, the spring has been uncommonly favourable for agricultural purposes. The Oat seed is all in the ground, and was so in many places some time ago; and most of the Bear is also sown over all the county. Except the first day of April, when it blew a perfect hurricane of drifting snow, the weather has been uniformly dry, with frequent high gales of wind; so that the springs and rivulets have fallen be-

low their usual size even in the summer months. It must be accounted a very fortunate circumstance, that the weather has been so favourable, in a year when so much of the seed deposited in the ground was light, and of inferior quality, besides the injury it had received from the frost. But April has been cold and backward to vegetation; so that neither the Oats nor the Grass fields are now in a more forward state than they usually are at this date. Provender has been very abundant, and rather more than the usual quantity remains in the stack-yards; which is not entirely owing to the original quantity having been great, but partly from the want of time to thrash, owing to the hurry of the season (much having remained to plough), partly from the scarcity of water for many thrashing mills, and partly from the abundance of last year's hay crop. The grain crop turned out as stated in last Report; the deficiency having been found very great in the interior, while the lands on the coast have given nearly an average return. The county will not export nearly one half as much as it did last year, and this too of greatly inferior quality. Very little remains in the merchant's hands; and although the stack-yards are bulky for the season on all the large farms, it is probable we shall not spare much, after the home supply is taken out. Prices, which had been steady through the winter, have of late given way; or rather, nothing is doing since the appearance of a supply from the Baltic. Merchants have not been inclined to speculate, unless at reduced prices; and the farmers having little ready for the market, have not been inclined to submit.

Grass parks (as far as yet let) have been taken as high as in any former year; and the cattle sold for grazing, or driving to the Southern markets, have also been purchased as dear fully as last, or any former year. Cattle in their growing or fattening state are now the chief object of attention in this county. Sheep are only to be found here and there; few are raised; and, except by the Aberdeen fleshers, very few fattened. Those raised are principally of the Cheviot breed, sometimes crossed with the small native ewes, and sometimes unmixed. The sheep markets, where formerly thousands of that animal were to be seen, have almost dwindled away to nothing.—30. *April.*

Upper Annandale Quarterly Report.

A snow storm, about the 20th April 1807, drifted up some ewes and a few early lambs, in the sheep farms about the north side of Queensberry. This day it has blown a tempest from the N. E., with sleet and rain, which must have been extremely severe on the Cheviot lambs on unsheltered farms: and this has followed a tract of cold and rather frosty weather, which was dry indeed, and favoured the culture of land. Severe weather is common about the first part of April; but it is not common to meet with such inclement weather at the close of the month. The farmer expects it with an adder's head, and peacock's tail: and in this view, he adjusts the

season of putting the rams into his flock, that fine weather may occur in the season of lambing. It is really incalculable what losses are sustained for want of shelter, particularly among the Cheviot lambs, which are naked when they appear.

The appearance of Wheat has been rather obstructed; and the luxuriance of sown Grasses has met with a check. But fine showers, and warmth to follow, would soon restore them, and cover the pastures and meadows with verdure.

Field labour has been greatly promoted; the seed is mostly deposited; and the Oat braird has been up some days; while that of the Barley is just appearing. Sown Grass seeds are putting in, every suitable morning, among the seed corn, or on the rising braird.

Prices of grain have begun to decline; but those of cattle are high, and likely to continue. Sheep also appear to be in demand; and fat never sold at a higher price. Rents of land can hardly be said to decline; though farmers are now really alarmed by the taxes at the commencement of new leases. Labour continues at full price, but not on the advance.—26. *April.*

Ayrshire Quarterly Report.

THE winter and spring quarters have been among the best I have ever seen for the store farmer; their sheep are in fine order, and the grass abundant. The month of March, though damp, did not retard the labour, so that the ploughing was got forward; but the sowing of Oats did not commence till the last week of March. The Wheat looks remarkably well, indeed it never looked better: it is true there is a partial failure, in consequence of the long wet weather, on some low lying strong clay lands, but not to a great extent: but never in our memory has so much been sown in this county. What was sown after Martinmas, and early in the spring, is planting most beautifully. The artificial Grasses are in great forwardness, and the Clovers well planted; but the farmers complain much of the crow. Agriculture, in every stage, is advancing; and it is pleasant to see the industry of the farmer attacking the steepest banks, that were formerly neglected. Numbers have this winter and spring been employed in digging up mosses in various parts of the county, (which has given employment to many, whose folly had kept them from work much more agreeable to themselves);—greatly, I think, stimulated to it by the writings of Mr Aiton, which, from his being well known in the county, are almost in the hands of every farmer interested. The pastures never were better at this season of the year; and from the great plenty of fodder, cattle of all kinds are in fine condition, and the dairy cow will be turned out to a full bite. The great and heavy ewes have sold at good prices; the lambing time, till within these four days, has been excellent; so that the store farmer has the prospect of being rewarded for his risk and trouble, and the market of a supply, upon reasonable terms. The store farmer suffers more from a cold sleet, than a dry snow. The mothers are in good habit, and have plenty of milk. Grain of all kinds begins to

fall in price; and from the present appearances of the barn-yard, and what is known to be in the granaries of the farmers, I think there is enough to serve this county till another crop, and some to spare for our neighbours. It was fortunate that the price of grain kept up during the winter, as that, and the dread of scarcity, made it be better husbanded both by the grower and consumer. Retail prices of Oatmeal from 2s. 2d. to 2s. 4d. per peck; Potatoes from 1s. to 1s. 3d. per peck of about 38 lib. English; skim milk cheese 8d. and 7d.; Sweet Milk 11d.; Salt Butter 1s. 8d. and 1s. 9d.; Fresh Butter 1s. 6d.; Beef 8d. to 1s. 2d.; Mutton 8d. to 1s.; Veal from 4d. to 10d.; Cheese, Butter, and Meat, are all sold by the county Tron weight of 24 ounces to the pound. It should not be overlooked, that the gentlemen of the county, ever attentive to the wants of the poor, and the members of the Mauchline Farmer Society, have this year, at a considerable trouble and expense, introduced a more early kind of Potatoe than was formerly in the county.—29. *April.*

Banffshire Quarterly Report.

THE past spring has been one of the most favourable for farming operations that is remembered for many years. The weather, which was mild and agreeable throughout the greater part of winter, became dry and windy in the beginning of February; and, with the exception of some partial showers of snow, and sometimes rain, has continued to be so ever since. In that month, a considerable quantity of Oats was sown; and as there has been scarcely any interruption to the labours of the field, the seed has been laid into the ground at an earlier period, and far more seasonably, than usual. In the upper districts of the county, a great proportion of the Oats were so materially injured by the frost and rain in autumn, as to be rendered unfit for seed; this occasioned a very great demand in the lower districts, where they were safe. A few farmers, not sufficiently cautious, who ventured to sow the produce of their own lands without trial, have been under the necessity of resowing; but this is an evil which happily is by no means general. The wetness of the autumn prevented the usual quantity of Wheat from being sown at that period; but the favourable spring has afforded an opportunity of making up, in part, for that deficiency; and those who occupy early soil, have availed themselves accordingly. The small extent laid down early in autumn is making a fine appearance; and what was sown at a later period, and in the spring, although not so far advanced, looks generally healthy, and promises to make a full crop. Peas and Beans were so much damaged in harvest, that upon an average the quantity saved would scarcely amount to the seed. This has tended to discourage sowing the usual quantity of these kinds of grain. Potatoes have been greatly in demand for seed; but as this was foreseen to be the case, a sufficient quantity has been saved; and, upon the whole, there appears to be fully the usual breadth planted this year. Although the weather has been uncommonly

dry and favourable, in a remarkable degree, to agricultural operations, yet it has been generally cold, and vegetation has made but little progress, except in the Turnip fields, which have run into full bloom. In order to prevent this, some have drawn and covered them up from the air in heaps; others have cut off the tops very close, and drawn them only as required. Hay and Straw are in great abundance, and a considerable quantity will remain in the stack-yard throughout the summer. The favourable winter and spring, accompanied with plenty of all kinds of provender, has put the feeding stock in better than ordinary condition; a few of the fattest lots have been sold already at good prices. Draft horses, and pairs of work oxen, have been remarkably high priced, and in considerable demand. Fine samples of Potatoe Oats for seed have sold at 45s. and common at 40s. per boll. Best Barley, for malting, at 50s.; inferior Oats from 20s. to 30s.; and Barley from 35s. to 45s.—Meal, of 8 stone Dutch per stone, has sold at above 35s. The quality of what was brought to market in the early part of the season was very inferior; but as the worst was consumed first, it is now greatly better; and from the quantity of grain in the country, no apprehension need be entertained of scarcity, unless the demand become much greater, to supply other markets. The prospect of a supply from the Continent during the ensuing summer, has had a considerable effect in depressing the prices, and limiting the sales.—29. *April.*

Dumfries-shire Quarterly Report.

The weather, since the date of last Report, has been variable. It continued wet till after the 20th of March, when it set in mild and dry, and the oat-seed was committed to land generally in good order. Barley land also harrowed well, when sown before it became too dry.

We had a tempestuous night of wind and snow on the 2d of April, and then again enjoyed some very fine warm days, which produced a very considerable growth of grass, and brought the early sown oats above ground. All this growth and vegetation, however, has been completely stopped by the cold and stormy east wind of the last fortnight. The frost has also been pretty keen in some of these nights; and, on that of Tuesday last, a fall, and violent drifting of snow, made considerable havoc among the newly dropt lambs of the mountainous district.

The Oats now brairded look well. Wheat sown early in last autumn has the best and most luxuriant appearance. But in many instances where that grain was sown after Potatoes, much of the seed perished, in consequence of the extreme rigour of the frost early in the winter; of course, the fields thus injured look by no means promising. This misfortune is not, however, very general; and most of the Potato Wheats are healthy.

Farmers are now busily employed in planting Potatoes, and in stirring the rest of their fallows.

A large proportion of crop 1812 is still on hand—certainly a good deal more than will be sufficient for our own consumption. The Lancashire markets will doubtless take all our superabundance. Corn has fallen in value for some time past, and the demand at present is not great.

Cattle are very high priced indeed; probably more so, by 5 per cent., than they have ever been; and the English markets, to which they have been driven, fully pay the dealer for his trouble and risks. Fattened cattle and sheep are both exceedingly scarce, and in many places not to be had. The prices given in our flesh-markets do not induce the farmer to feed extensively; and to drive stock to Edinburgh or Glasgow, is both an expensive and precarious business.

The system of feeding horses with steamed potatoes, is much approved of, but is not as yet generally practised. It would certainly prove a beneficial mode of consuming them in this county, where they are sold for the Lancashire markets, commonly at from 1s. 4d. to 1s. 8d. per cwt. These low prices certainly render them peculiarly appropriate for feeding horses, as they never can be any object for sale, except in the very near neighbourhood of Dumfries and other places where they are consumed or shipped. Any length of carriage would run away with the whole value.

By the present system, the principal consumption of this crop is in feeding pork, when they are always boiled, and meal of some kind mixed with them. A few are given raw to horses in the evenings through the winter, and the remainder goes to young cattle and milch cows in the spring.

The writer of this has for some years been in the practice of feeding horses with potatoes steamed. The quantity allowed was 42 lib. *per diem* to each horse; probably they may get a few pounds more. It is only practised for four months in the winter; and the horses get then into the best condition, though always closely kept at work. When fed in this way, they get straw as fodder; and they uniformly lose flesh and spirits when put on hay and oats, though the latter are not sparingly given—say from 12 to 15 lib. daily. If it could be managed to continue the steamed potatoes to the horses through the spring, much hay would be saved, as they eat very little of it when fed in this way.

Pork has rated very high in our markets through the winter. In the latter part of the season, it rose as high as from 8s. to 8s. 6d. per stone of 14 lib. It is understood to be paying the curer very well, bacon being in great demand.

Nothing more has yet been done respecting the Annandale canal. Mr Jardine, who is appointed to survey it, has not done so at this time. Till he reports something decisive, nothing one way or other can be said. In the mean time, every friend to this part of the country must cordially wish for its accomplishment.

Prices of farm-produce may be stated as follows.—Wheat 14s.; Barley 7s. to 7s. 4d.; Potato Oats from 5s. to 6s.; Common ditto

4s. to 4s. 8d., all per Winchester bushel. Beef and Mutton from 7d. to 9d. per lib.

Fife Quarterly Report.

THE spring quarter has been peculiarly favourable, and allowed the seed Barley, as well as Oats, to be harrowed in, and finished, in a complete manner: There is, no doubt, still some Barley not sown; but much less than usual at this date. And if the old adage—*Such seed-time, such harvest*—may be depended on, the prospect for the country, on the whole, is extremely favourable.

Wheat, all over this county, has come up thick and equal, and has at present a most favourable appearance. The same may be said of Beans and Peas.

The young Clovers are well advanced, and promise to furnish a good crop of Hay.—Turnip, from the favourable weather, held out to the last fresh and good; at least, fewer have been rotten by the frost than usual.

Potatoes—The ground is preparing for planting these in favourable circumstances. A large quantity will probably be planted, as there is abundance of Potatoes in the finest condition for seed; and the price of that most useful root, instead of rising higher at seed-time, has fallen no less than 4s. per boll; the current price being now 8s. instead of 12s. some months ago.

On the 26th, it rained all day, with cold wind—almost the only rain for five weeks past; and if warm weather succeed, it will be of infinite service to the pastures, and do no injury to any thing.

The farmers, in general, have been most active in embracing the favourable opportunity: their labours have been incessant, and the agriculture of this county continues to be carried on with great spirit.—The rents of Pasture Grass seem to be stationary; rather under, as over, last year's rates.

Cattle continue at advanced prices.

There is at this period not the least reason to apprehend any scarcity of victual, or other provision; and the presumption is, that prices will be stationary, or perhaps look downwards.—27. *April.*

Forfarshire Quarterly Report.

THE winter, in this county, was uncommonly mild and propitious. The frost never was very intense, nor the snow in excess. From about the middle of February, we enjoyed a tract of uncommonly mild weather, and much was done in spring labour. But on the 1st of April we had a very boisterous wind from N. E. accompanied with a heavy fall of snow, and succeeded by intense frost, which interrupted the labours of the field more than a week. Since that time, we have enjoyed uncommonly mild weather, often as genial as it has been known here at midsummer. The seeding process is nearly finished, and great progress is made in planting Potatoes. The seed has been committed to the ground while it was in the best order that has been remembered for many years.—The winter Wheats look remarkably well, and the sown Grasses; while

the stock of Turnips is not yet consumed, and the Pastures are coming into use.

Horses and Cattle support high prices, while Grain is rather looking down; which is ascribed to the prospect of trade opening with the Baltic. The Fiar prices of this county, as struck at Candlemas last, here follow.

Wheat -	L. 2	16	10	Common Oats	L. 1	9	0
Barley - -	1	17	1	Oatmeal - -	1	13	0
Chester, or Bear	1	12	9	Beans - -	1	14	0
Potato Oats -	1	13	6	Peas - -	1	16	0

With regard to the retail prices, Oatmeal was at one time as high as 2s. 6d. But at Dundee, on the 15th April, they were as follow—Oatmeal, 2s. 3d. per peck; Barley, 1s. 7d.; Peas, 1s. 7d.; Potatoes, 1s. 3d.—Beef, 8d. and 9d. per lib.; Mutton, 7d. and 8d.; Veal, 7d. and 8d; Pork, 7d.; Butter 1s. 4d. Eggs, 8d. per dozen. Quartern loaf, fine, 1s. 4d.

Two deficient crops coming in succession, have borne very hard on the labouring class of the community. The crop of the former year was entirely exhausted, before the last crop came into its place. This has been the more severely felt, that trade has been dull, wages low, and work difficult to be procured. The countries also, from which deficiencies used to be supplied, were exhausted by war. This shows the expediency, or rather absolute necessity, of a more vigorous cultivation of our own soil, and of tearing up those tracts of waste land which still continue to be barren and useless. Near our towns, the people were obliged to have recourse to Potatoes; and a great part of that crop was consumed last harvest before they were fully ripe. Great exertions are made to increase the quantity planted this season.

A gentleman near Forfar has employed Mr Johnson to plan and mark out drains to an extensive tract of wet, spouty, and boggy land; which is not only useless in itself, but spreads blight and mildew among the cultivated lands contiguous. It is to be hoped, this patriotic example will be followed, until all the land fit for culture be rendered productive.

When the last crop came into market, a tendency to riot was manifested in some of our sea-port towns; the object of which was to prevent grain from being exported to other districts. But the active exertions of some of our Magistrates succeeded in convincing the people that such proceedings would only aggravate the evil they were intended to remedy: That the only way by which it was possible to procure *cheapness*, was by *plenty*; and that where plenty actually existed, it was not in the power of any individuals, or combination of individuals, to enhance the prices. These proceedings were exaggerated by rumour; and farmers were afraid of their persons and property in bringing their produce to market, which occasioned temporary distress. But being assured the danger was wholly imaginary, things went on as usual; and the prices have

continued to decline ever since. The people have borne their hardships with exemplary patience and resignation; and liberal contributions have been raised in the towns, and most of the country parishes, for the relief of the poor and destitute.—19. *April.*

Letter from Glasgow, 1st May.

'SINCE our last Report, the weather has not, upon the whole, been unfavourable for agricultural labour. It rained, indeed, during the whole of the month of February, and the greater part of the month of March, but not so violently as to put a stop to the operations of the plough; and before the weather became favourable for sowing, which it did about the beginning of April, the ground was in general ready for the reception of the seed. Our spring Corn was sown in the best possible order; and what of it has begun to braird, has a very fine appearance. From the beginning of March till about the 20th of April, vegetation was uncommonly strong and rapid. The winter sown Wheats were then as far advanced as they usually are about the middle of May; and the Grasses had a more luxuriant appearance than they have had at that time of the season for many years past. A considerable check, however, has been put to the progress of vegetation by the cold easterly winds; which have blown violently, and without intermission, for more than eight days. Should these winds continue for two or three weeks, as is sometimes the case at this period of the year, it is to be feared that they will prove very injurious to the growing crops. The worm has also made its appearance; but the extent of the evil that may be occasioned by this destructive insect, is not yet known. Though the weather is cold, it is likewise dry, and therefore very favourable for the planting of Potatoes; in which department of husbandry, the farmers in this neighbourhood are very busily engaged.

'The market has for some time been abundantly supplied with Oats from Ireland and the west of Scotland. Not less than 70,000 bolls have been brought to it during the last three months. So great a quantity of this grain was perhaps never before brought to the Glasgow market in so short a time. We have also had not less than 6,000 quarters of Barley, the greater part of which has been imported from Ireland; and, in general, has proved very good malting grain. Our importations of Wheat and Flour have not been very extensive; not more than 6,000 quarters of the former, and 3,000 bags of the latter: But as we have had a few cargoes from the north of Scotland, and considerable quantities from different parts of the country, our supplies have been abundant. There is a considerable stock on hand at present, and prices on the decline. Indeed, grain of all kinds, as will appear from the annexed State of our Market, has fallen considerably since our last Report: and, provided the weather prove good, and supplies are obtained from the Baltic, it may reasonably be expected that our markets will continue moderate throughout the summer. We are,' &c.

Wheat.	British, - -	50s. to 58s.	p. 240 lib.
	Irish, - -	48s. — 54s.	
Oats.	Irish Mealing, -	34s. — 36s.	p. 264 lib.
	Inferior, - -	32s. — 34s.	
	Scotch Potato, -	34s. — 36s.	
	Small, - -	32s. — 33s.	p. 240 lib.
Barley.	Scotch, - -	42s. — 44s.	p. Stirlingshire boll.
	Irish, - -	38s. — 40s.	p. Renfrewshire do.
Beans and Peas,	- -	38s. — 42s.	p. Stirlingshire do.
Oatmeal,	- - -	30s. — 34s.	p. 140 lib.
Fine Flour,	- - -	90s. — 95s.	p. 280 lib.
Hay,	- - - -	12d. — 13d.	p. stone.

Kincardineshire Quarterly Report.

Beans, Peas, Oats, Potatoes, and what Barley is already sown, have all been got into the ground under the most favourable circumstances; which is a matter of much importance to the after growth of these articles. But for these eight or ten days, the weather has been somewhat hard and stormy; so that vegetation is making but small progress. Wheats still present a diversified appearance: In few situations are they luxuriant, though healthy; and, in several cases, not a little is thrown up on wet soils.

Markets, both for Grain and Cattle, have continued remarkably steady through the season. The latter of which has every prospect of being in demand; although the former is not now so eagerly called for, and is beginning to show a tendency to drop in price. Not a little grain yet remains in the farmers' hands: hence it is probable no scarcity will be felt during the summer months. It is an old adage in this part of the country, that "*when corn falls in seed-time, it is a sure sign of plenty.*"

Grass let for the season is renting pretty high. Therefore, considering the rate at which Cattle have been, and are still buying in, one would be apt to think, that unless a still farther advance in the price of this article takes place, the grazier will be under the necessity of contenting himself with a small remuneration.

The Justices of the Peace have resolved to take such steps as will be the means of utterly suppressing the travelling vagrants with which the county has for some time been grievously infested.

To-day, it snows heavily. A very uncouth visitant indeed.——*27. April.*

Stewartry of Kirkcudbright Quarterly Report.

The weather, throughout the greatest part of this quarter, has been propitious to live stock, and not unfavourable to the different operations of agriculture. Till near its close, westerly winds have almost uniformly prevailed, accompanied with a milder temperature of the atmosphere, and more luxuriant vegetation, than is usual so early in the season, even in this southern district. In the months of February and March, rains were much more frequent and copious than (as we are informed) they have been along the eastern coast:

but as no falls of snow or stormy weather occurred, these did not much interrupt the operations of the plough. Early in February, considerable quantities both of winter and spring Wheat were sown on dry and warm soils, which appear to have answered well; but, till about the end of March, very little was done in the sowing of other kinds of grain; nor was the ground before this time in a proper condition for the reception of the seed.

On the 2d of April, after a tract of the mildest weather, a tremendous hurricane, with an enormous fall of snow, most unexpectedly took place. Nothing similar had occurred for a long series of years. The aspect of the heavens was so lowering,—the masses of snow so prodigious,—the season already so far advanced,—and so little grain put into the ground, that there was good reason to be apprehensive of a late, and very bad seedtime, with a repetition of all those baneful consequences which happened at the close of last century; when, at the same advanced season, a storm precisely of the same kind was general over the whole country. These gloomy forebodings were, however soon dissipated. The storm, so sudden in its approach, no less suddenly took its departure. In two or three days, sowing was resumed; the greatest possible exertions have since been made; and, till near the end of the month, the weather has been all that the farmer could wish, for forwarding and bringing to a happy termination the labours of the spring. As this month began, it has ended with a storm.

Here, perhaps, it may not seem out of place to advert to the important advantages which result from late improvements in the implements of husbandry, and from proper attention to the feeding of horses; by which means, I venture to say, that, in cases of emergency, more work, and to better purpose, can now be done in a fortnight, than at no distant period could have been performed in a month, by the same number of animals.—Iron ploughs are now common, and uniformly give satisfaction. The only objection to them is their weight; which, we apprehend, might be considerably diminished, were they to be made of good Swedish iron. Iron harrows, besides possessing other advantages, seem peculiarly adapted for lands not completely dry, as the wet mould does not adhere to them nearly so much as to wooden ones. A material improvement, I apprehend, might be made on these, by using, for the bulls, cast metal in place of malleable iron, and forming them into hollow tubes, like gun barrels, of sufficient diameter to afford the means of fixing the teeth, with wooden wedges, or folds of leather wrapped around them, instead of the nuts and screws now used, which are liable to objections too obvious to require notice. The expense would thus be greatly diminished; and on other accounts, I am of opinion, they would be also preferable; but having never seen or heard of any such, I merely throw out the idea, with a view of drawing the attention of some of your mechanical correspondents to the subject.

The model of the diamond harrow, a drawing of which is given in one of your former Numbers, is superior to any I have seen.

Though seedtime was late in its commencement, owing to the rapid progress of vegetation, much is already in braird. Both spring and winter Wheat have in general a very promising appearance; though, we are aware, it would still be premature to calculate on the returns of these, or any other crop; particularly as it is proverbial, 'that 'an early spring seldom fails to receive a check;' which at present appears to be the case.—A pretty accurate estimate can now, however, be formed of last year's produce; and it evidently appears, that, notwithstanding the badness of the harvest, it has, in this district, considerably exceeded an average crop. The exports have been large; and part still remains for exportation. Prices have been high, and unusually steady through the season. A small depression has lately taken place; and grain-dealers are at present shy of purchasing, from the idea that a still greater reduction of price may be expected. Be this as it may, all who have brought their grain regularly to market cannot now have reason to complain. If individuals who, in such times, have stored up grain with a view to a rising market, should suffer, they can only complain of their own folly, and well deserve to smart for their unfeeling avarice. In years of plenty, when the markets are glutted, and prices low, it is certainly not unpatriotic to store up grain, as this may ultimately be beneficial to the community, by preventing much waste and unnecessary expenditure, which always happen when the price falls much below the proper level; and thus affording a resource against a failure in subsequent crops.

Cattle markets have lately been upon the advance, and will probably continue high, as there is rather a scarcity both of fat and lean cattle; and the breed of hogs has not been for many years so much reduced. From the mildness of the season, and the plentiful stock of fodder, both Sheep and Black Cattle are in good condition; but from the present storm, it is feared that many of the lambs, and perhaps some of their dams, will suffer, as it is just now the season of *lambing* in the mountainous districts.

Prices.—Oatmeal, 3s. 9d.; Barley from 7s. to 7s. 6d.; Wheat from 12s. to 14s. per bushel; Beef and Mutton 8d. per pound.—*April* 29.

Letter from a Correspondent near Langholm, 30th April.

'Since the publication of your last Number, the weather has in general been mild and temperate, with the exception of a heavy fall of snow, about the beginning of the present month; which, however, passed gently away. On Monday last, we had a high wind from the eastward; and the following day it blew a perfect hurricane, accompanied with a considerable fall of snow; since which we have had cold, dry, and chilling weather, which has given a check to vegetation, which had appeared unusually forward at this period of the season. The mildness of the spring quarter was strik-

ingly displayed in the bright verdure of the fields, during the present and preceding month. Not only the low lying pastures, but even the hills, began to assume the verdant hue of the summer months, at a period when they generally present nothing to the eye but the appearance of sterility. The cold withering winds which prevail at present, have somewhat blasted these prospects. On all dry, low-lying grounds, where the seed was got in in due time, a fine braird quickly succeeded the time of sowing; but in the wet, or moorish soils, field operations have been much retarded, from the excess of moisture which has generally prevailed; and the seedtime, of consequence, rather late. For the last ten days, however, the soil was quite dry, and in a fine working state for the ensuing green crops; in which operations we are now busily engaged.

'The average state of the markets, though these have been subject to considerable fluctuations, has not varied much during these two months past. The price of grain, particularly of such as was fit for seed, has got up to a high rate. Of late, it has had a very small drop; but there is little prospect of any very material reduction of price, until the new crop come into the market, unless some unforeseen supply from foreign parts should produce such a depression.

'The flocks, in the upper part of this district, are generally in a good healthy condition. The lambing-season commenced under the most favourable auspices. The last four cold and stormy days has somewhat altered the prospect; but, though the present inclement weather should continue for some time to come, the stocks are in much better condition to bear it than usual; and there is abundance of food in the pastures, although some loss may be expected in the mean time. There seems at present to be a considerable demand for Sheep, and an advance in price, particularly for such as are forward in condition, as there appears to be a want of supply of fat stock for the butcher market in the south. The same may be said of Black Cattle; and if the present abundant prospect of grass continues, the demand for them is likely to increase. The price of good Horses was never higher. Hogs, both live and dead, have sold well last season. Butcher meat is scarce, and consequently dearer than usual. The Wool trade has been brisker of late; and a pretty considerable advance in the price of that article has lately taken place. The Cotton manufacture, which is carried on to a considerable extent at Langholm, is likewise beginning to quicken.'

West Lothian Quarterly Report.

The weather here during winter has been upon the whole remarkably open,—the frost gentle and never of long continuance,—the falls of snow in the north range of the county seldom three inches deep,—the winds, frequently from the west, occasionally very high for these two days from the N. E.,—and weather cold, wet, and sleety. The worst trial for cattle in the fields that has occurred this season, and rather unfortunate for the upland districts, which are in the

middle of their lambing time. The open winter and dry seed-time, has rendered vegetation by more than two weeks earlier than last year. The clover and ryegrass fields seldom exhibited a more early and favourable appearance, and even the old pastures have retained their verdure, and are in a forward state. The same may be said of the wheat fields, which have suffered no injury from spring frosts. Seldom has the bean and oat seed got a more favourable season. The land has also been got properly wrought for the potatoe crop, which is nearly all planted. The lands have ploughed well for the Barley seed; but a considerable quantity still remains to be sown. It was perhaps very fortunate that no distillation was allowed from barley, as the high price it lately gave in the market, evinces, that had it been allowed to be consumed by distillation, it would have been by this time a scarce article.

There has been no want of fodder this season. Turnips are now almost totally done, some few Swedish excepted; a valuable plant where dung enough can be got. It is most useful spring food; cattle, horses, and swine eat it readily, and all thrive with it.

Markets for grain have been steady all winter and spring; and since the seed has mostly been sown, prices have rather declined a little. Although, weighing every probable circumstance, there is little prospect of any decline in prices during the summer quarter; at the same time there are no fears of any deficiency to answer ordinary demands.

The present prices of Grain here may be stated nearly as follows. —Wheat 60s.; Barley 48s.; Peas and Beans 40s.; Oats from 30s. to 40s., all the Linlithgow boll; Oatmeal 2s. 4d. the peck of 8 lib. Dutch weight.

Both Lean and Fat Cattle bring high prices; good Fat rather a scarce article. The forward state of the Turnip crop, occasioned by the open winter, and the want of distillery food, may have contributed not a little to this cause. In most places grass-rents have rather been on the rise this season.——*April 27th.*

Mid-Lothian Quarterly Report.

The seed-time of the year 1813 may be recorded as one of the driest and best within the recollection of any person. It commenced pretty early in March, and met with no stoppage, unless from high winds, until the first of April, when snow from the east took place: But this was neither excessive, nor of long continuance. But on the 26th and 27th of that month, it snowed without intermission, and with great violence: it lay upon the high lands, and was severe upon the young lambs, of whom a partial loss has been sustained. The snow melted in the lower part of the county as it fell; and the ground, upon retentive subsoils, became very wet. Some Barley is still to sow; and a great extent of Potato land remains unplanted.

Since the 25th ult. the wind has blown regularly from the east, with more than an usual degree of cold; which has had the effect

of rendering the appearance of the fields less verdant than they were in the month of March. Both Grass and Wheat have lost the green hue, and assumed a brown aspect; and even the foliage of the Hawthorn is frost-bit. It is no wonder, therefore, that stock upon pasture should make little progress under such circumstances: and should there be a continuance of similar weather, the supply for the butcher market in all probability will become scarce.

Since the commencement of seed-time, a great diminution has taken place in the size of the stack-yards, under the impression that there will be large importations of Grain from the Baltic; and the Quartern Loaf has fallen three halfpence. But whether these expectations will be realized, seems rather problematical.

Pasture Land, of good quality, has set fully as high this season as at any former period.—3. *May.*

East Lothian Quarterly Report.

THE whole of the Turnip stock may now be said to be disposed of; and seldom has the feeder, of both cattle and sheep, been better paid for his labour and outlay.

Grass Parks have let higher this season than they did last year, perhaps to the rate of from 15 to 20 per cent. At the same time, the extent of ground annually let in that manner, in this district, is far from being considerable; and is generally taken by those who may have wintered a greater number of cattle than they have grass for upon their farms; or for the purpose of grazing young horses, for which these fields are well calculated, from being sufficiently enclosed. There are not many cattle as yet put out to grass, as the very cold easterly wind, which has prevailed for the last ten days, has given a very severe check to vegetation of every description; so that even the winter Wheats, in many instances, although close upon the ground, are looking very backward.

Nearly the whole cattle bought or sold about this period, are only those which have been wintered in the county. But a very considerable number of ewes, in lamb, are every spring brought into the district from other counties. The prices for such, this season, have been from 18s. to 24s. a head; and although the weather has been very cold lately, yet the loss of lambs has not been great.

One of the new Fairs, which the farmers of the district have resolved to establish at Haddington, takes place on the second Friday of the present month; and as handsome premiums are offered to dealers, in other districts, who may bring to, and sell in the said market, the two best lots of Cattle for grazing, as well as the two best lots of Draught Horses, it is to be expected that the fair will be well attended.

Although the Grain markets have fluctuated a little, yet the prices are not materially different from what they were at the beginning of the quarter: At the same time, when the superior condition of the grain is taken into consideration, they certainly may be consi-

dered as having declined more than at first view might be supposed. At Haddington, on Friday last, best prices were—for Wheat, 64s.; Barley, 47s.; Oats, 41s.; and Beans, 38s. 6d. per boll. Potatoes for seed have been from 14s. to 20s. per boll of 4 cwt. Beef and Mutton from 9d. to 10d.; Veal, 10d. to 1s. per lib.; and Lamb from 6s. to 8s. per quarter.

Although the stack-yards show clearly that there is nothing like scarcity in this district; nevertheless, it is utterly impossible to form any thing like an accurate idea of the future prices of grain. However, as it is a very common opinion that this country, in ordinary seasons, is unable to produce as much grain as is sufficient for the supply of the inhabitants, it may be observed, that this remark has every appearance of being put to the test before harvest; it being well known, that the country has seldom, if ever, been more completely exhausted of grain, than it was when the present crop (by no means above an average one) was gathered into the stack-yard. It is also pretty certain, that very little foreign grain has as yet been brought into the kingdom; therefore, should the supplies from abroad be equally trifling through the summer, as the present prospect warrants us to expect, prices must either advance very considerably, or the commonly received opinion be proved totally erroneous.—3. *May.*

Lanarkshire Quarterly Report.

The weather has seldom varied more than during the last quarter. The Moor Sheep have suffered, in part, from the frequent rains and heavy winds during the spring. But from the uncommon mildness and dryness of the winter quarter, no heavy snows having fallen, and the early growth in the spring, they have seldom set their feet upon the gowans in better plight. The lambing-time commenced about the 15th, and was nearly over before the storm on the 24th. A few of the latest of the lambs, however, have been lost by that storm.

From the superabundance of Fodder and Potatoes, Cattle of all descriptions have fared remarkably well, and will come to pasture in excellent habit: a matter of great importance to every species of stock, but especially to the dairy stock, which never give much milk, or that of a good quality, except when they are in good habit of body.

As the growth on early Fruit Trees, Gooseberries, &c. had, in low situations, made some progress prior to the blast on the 24th April, there is reason to fear they may have been injured by the frost.

The price of Oatmeal has fallen from 2s. 5d. to 2s. 1d. during the last two weeks; and from the uncommon number of stacks still in the barn-yard at this season of the year, and some of the ports on the Baltic being now open to us, there is every reason to hope the markets may yet fall still farther. Fortunately, the difference between the ordinary earnings of mechanics and the prices of provi-

sions, are not so great as they were last summer. Still, however, the markets are too high for the reduced state of wages; and every person must rejoice to see them approach somewhat nearer than they are at present. It is not so much by advance in the prices of grain, as by raising more with less consumpt, that the rents of land, and the condition of the farmers have been bettered. And it is not by an increase in the price, but by improvements on the soil, especially waste land, and in the modes of husbandry, that every one would wish to see the farmers still more enriched.

Potatoes were sold, in some parts of the county, at 17d. in harvest, when the Oatmeal was at 2s. 6d. per peck. They stood several weeks at from 10d. to 1s.; but started in March last to 1s. 6d.: and now they are again sold at from 10d. to 1s. per peck.—Butter, Cheese, and Butcher Meat have remained steady during the winter and spring. Veal, which is fed to a greater extent in this county and neighbourhood than in any other quarter of Scotland, has been more in demand, and sold higher this spring, than for some years past.—1. *May.*

Morayshire Quarterly Report.

The Oats and what Barley is sown, have got a very dry bed; indeed what Grain was sown lately in the dry sandy fields, will scarcely have as much moisture as make it vegetate; the first sown Oats are putting up a fine healthy strong braird. All the autumn sown Wheats look well; but what was laid down in winter, although there is plenty of plants, makes but a poor appearance, and evidently stands much in want of rain.

The quantity of Grain remaining in the stackyard is greater than it generally is at this season of the year. Prices have kept pretty steady throughout the season, until lately, that the expectation of a supply from the Baltic has caused a stagnation. What Wheat remains in the country, there is now no appearance of any merchants for. Oats, Barley, and Oatmeal continue much the same as noted in last Report.

There scarcely remains a lot of Stots, of size and condition for going south, in the county; all are bought up and away, fully 7½ p. cent. higher than last year.

Elgin market continues to be well supplied with Butcher Meat.—Beef and Mutton sell by retail at 7d.; Lamb, 1s. to 1s. 6d.; Pork, 5d. to 6d. per lib. of 17½ oz.——29. *April.*

Perthsire Quarterly Report.

The preceding quarter has been more favourable to the farmer, than the spring quarter generally is, or perhaps is expected to be in this climate. The number of rainy days in February was indeed very considerable; but the quantity of rain was neither so great nor so prejudicial as might be supposed, while the month of March was singularly warm, dry, and favourable to every kind of spring work—forming a striking contrast to the same month of last year. The thermometer was only twice below 32° during the whole month, and

sometimes as high as 58°. April set in with a *heavy* fall of snow; which, however, soon disappeared, and was succeeded by excellent seed weather. The wind was almost constantly from the west, till the 23d of April, when it shifted to the east. The change was accompanied with a little rain and snow; but ultimately it cleared up, with a cold dry wind, at times pretty violent.

The following is the abstract for the quarter.

	Number of Fair Days.	Number of Rainy Days.	Quantity of Rain.	Mean Temp. of Max. and Min.	Mean Temp. of Ten and Ten.
February	6	22	3.123	39.366	39 517
March	22	9	1.014	43.225	42.947
April	23	7	0.522	44.349	43.825

Of the rain that fell during the month of March, .7 belong to April, March being supposed to terminate, according to the Journal from which the above is extracted, at 10 o'clock of the morning of the 1st of April. It may be proper too, to observe, that every day is ranked among the rainy days, when the quantity of rain amounts to one hundredth of an inch.

Perhaps the weather during the month of March, was somewhat too mild for particular parts of the country. In the Carse of Gowrie, for example, where the seed-time was ten days earlier than in the upper district of the county, the want of frost was much felt for pulverizing the stiff clay that had been run together by the rains of February. On the whole, however, the seed furrow was made, and the seed laid down in excellent condition. The Grass and young Wheats look well; and, compared with last season, every thing may be considered as in a state of great forwardness. The latter end of April, indeed, has been rather unfriendly to vegetation, and detrimental, it is to be feared, to the blossom of the early fruit.

The Grain market has been on the decline for the last six weeks, but seems to be now stationary. Various causes are of course assigned for this fall, and various speculations are on foot, with regard to the consequences. The true causes of the decline, are, perhaps, the large importation from Ireland into the west country; the *expected* supply from the Baltic; and the favourable nature of the early part of spring. The last, indeed, has of late ceased to operate, and the second has not yet been realized. It is consoling however for the poor, to find that the quantity of Potatoes in the country is *immense*, and of late greatly reduced in price. The prices of Grain in yesterday's market, were rather higher than the preceding week; but they are now nearly as follows.—Wheat, 48s. to 54s.; Barley, 33s. to 38s.; best Potatoe Oats, 34s.; Common Oats, 30s.; Peas and Beans, 30s. to 33s.; Oatmeal, 2s. 3d. per peck; Cattle keep up in price. The winter supply of food was large; and it is hoped the summer will not be scanty. Grass parks are letting very high.——*May* 1.

Ross-shire Quarterly Report.

The seed season has been most favourable; and the foundation of

a good crop, it is hoped, laid, under the peculiar advantages of a dry and early bed. The Peas, Beans, and Oats were mostly sown in March; and the Barley-seed will be nearly accomplished in April: so that, in this important branch of husbandry, we are about a month earlier than in common years. The weather, during April, has been generally cold and unfriendly to vegetation; but so free of rain as to make those on dry soils wish for a shower to help to vegetate the last sown Barley. Wheats have stood the winter well; and the fields are stocked with a sufficiency of healthy plants, as are also the fields of young grass. Pastures begin to assume a verdant aspect, but do not make progress, owing to the cold frosty winds. All kinds of stock fed on turnips, whether for the butcher or drover, have paid well; and the prices obtained for them, such, as make us suppose that the buyers will be losers when they resell, if they do not get from 11s. to 12s. per stone, sinking the offal.

The Easter Ross Farmers' Club, which comprises nearly the whole of the gentlemen and farmers in that district, engaged with farms of extent, and managed according to the mode practised in the south, being impressed, from various reasons, with the importance of endeavouring to effect an improvement in their breed of horses,—particularly seeing how often they have to incur the heavy expense of going or sending to the south for a supply; that the rent of lands in Ross-shire should enable them to breed on terms fully as advantageous as in the south; that hitherto the stallions which travelled the county, appeared in general to be only the cast-offs of the south:—These considerations induced the Club to advertise a premium, offering 100 guineas to have 60 mares belonging to the members covered by the best draught stallion they could find; and in addition to which, Lieutenant-General Sir Charles Ross of Balnagowan, the preses of the Club, generously gave ten guineas.—The Morayshire Farmer Club, actuated by similar motives, had also advertised, and offered a premium exceeding that of Easter Ross.—It was therefore thought best, under all the circumstances of the case, for the competition to take place at Elgin in Morayshire, allowing that Club the first choice. The result did not disappoint the parties interested. Twelve stallions were shown; and horses from the south-west of Scotland were selected by the judges, one each, for their respective Clubs, very superior to what have hitherto appeared in the north. The most pleasant understanding existed 'twixt the parties concerned; and the urbanity of the Morayshire gentlemen to their friends from the north, sent them home much pleased with their journey, and with the conviction that, in matters of this kind, the general good is greatly promoted by mutual cooperation, regulated as this was, on principles of honour and justice, the never failing attributes of truly improved and enlightened society.—Mention was made, in the last Report, of its being in contemplation to obtain the sanction of Parliament to double the present assessments in lieu of statute labour on farmers who pay 100*l.* a year and upwards, for the purpose of carrying on the

making of roads; and a persuasion was added, on the part of the writer, that the tenantry would not grudge to bear their share of burdens of this description *proportional* to their landlords, as in the other more improved counties. At a meeting of the Easter Ross Farmers' Club, since the period alluded to, this matter was brought forward, for the purpose of obtaining the acquiescence of the Club in the measure proposed, when it was thought proper to appoint a Committee of their number to take the Road acts, and the proposition made, under their consideration, and report thereon. In doing so, the Committee availed themselves of the opportunity to compare how the tenants of Ross-shire stood in that respect, with those of Inverness-shire and Elginshire; and, strange as it may appear, there is a difference, and that materially, against the tenants in Ross-shire. By the Inverness-shire act it appears, that the proprietors pay the whole of the assessment under the Commutation act, and recover one-half thereof from the tenants; and, by the Elginshire act, the proprietors pay the whole, and recover three-fourths from the tenants. Thus, in Inverness-shire one-half, and in Elginshire one-fourth, of the assessment is defrayed by the proprietors; whereas, in Ross-shire the whole is paid by the tenants, excepting only in so far as the proprietors pay, in an equal degree, for the part of their property in their own occupation. The Club seeing the illiberal footing on which the tenants of Ross-shire were intended to be placed, compared with those in Inverness-shire and Elginshire, resolved, and did present a petition to the heritors of the shire, when convened for the purpose of revising the bill to be brought into Parliament; in which petition they expressed their opinion as to the expediency of increasing the rate of assessment, even to the extent proposed, and also the willingness of the tenantry to bear their proportion: at the same time, praying that the proprietors would take a share of the burden on themselves, as in Inverness-shire and Elginshire. This petition, it seems, had no effect in changing the sentiments of the heritors; and the Club, at their last meeting, (when it was suggested that a subscription should be entered into, to fee counsel to oppose it in Parliament), had the mortification to learn that the bill was already passed. A statement of facts, as condescended upon, will at once show in what manner the tenants of this county have been used in this measure. Advertisements may placard liberal encouragement; but it must render many sceptical on that head, when they see such narrow-minded policy adopted in a preliminary step of such importance to agricultural improvement, and in a county as yet in a state of infancy in that respect. It is not the wish of the writer to inveigh more severely against such conduct; but, as one deeply interested in the prosperity of the agriculture of Ross-shire, his interest prompts him (and, as an independent and impartial reporter of the state of its rural affairs, he considers it his duty) not to pass, unnoticed, matters which are so highly injurious to its welfare.——*29th April.*

Roxburghshire Quarterly Report.

THE weather, during the last quarter, has been generally favourable. The sowing is now completed in the most satisfactory manner; the braird looks uniformly well; and affords a pleasing prospect of an abundant ensuing crop.

The Winter Wheat looks well in general, and has been much improved by the dry weather. The same may be observed of the Spring Wheat, for which the season has been peculiarly favourable; but, from the failure of that part of the crop last year, the quantity sown this season is very limited.—The Potatoe crop has likewise been put into the ground under the same favourable circumstances: they are now nearly all planted, and we believe fully to their usual extent.

The Grain markets have experienced a considerable depression during the last month; but we conceive that this cannot take place to any considerable extent, until we are relieved by another crop. It is gratifying to observe, that there is still a full proportion of grain left in the barnyards, in this district; but we believe it is chiefly in that state, and that there is very little in the hands of the corn-merchant. However, if other districts are in similar fortunate circumstances, there cannot be any scarcity apprehended before harvest.

The Turnip crop, which was originally very scanty, has turned out fully equal to the demand. This has arisen from the favourable state of the weather, which has produced a full supply of grass three weeks earlier than last year; and a very considerable rise that took place in the Fat market about the beginning of March, which enabled the feeder to dispose of his stock to the best advantage, when he found it necessary.—Beef is selling from 8s. to 9s. 6d.; and Mutton from 10s. 6d. to 12s. per English stone, sinking the offal.—The demand from the South for Wintering Cattle has been very considerable; and consequently they have been sold at high prices.—*April* 26.

Tweeddale Quarterly Report.

THE lambing season generally commenced about the 17th current; and the ewes being in excellent condition, and vegetation forward, a large crop of Lambs was anticipated, to make up for the destruction of last season; when these hopes were considerably and suddenly blasted on Monday last, by a tremendous high wind from the north-east, with a great fall of rain, sleet, and snow in succession; which continued with little intermission for that and the succeeding day, and must have killed a great many newly dropped lambs. The wind has since continued very high, from north-east and east: but to-day is a little softer. Heavy cast Ewes have brought good prices; Black-faced from 22s. to 24s., and Cheviot from 26s. to 28s. Most of the turnip fed Sheep in this county were disposed of before the late high prices, owing to the failure of turnips; and Cattle likewise, from the same cause, except a few kept on Swedish turnips, which have paid well, from the rise in markets. Lean Cattle for grass are likewise in demand, and bring good prices. Fodder continues plentiful. The stackyards are pretty bulky for the season, so as to prevent any alarm about scarcity; though it is apprehended that there

is very little grain laid up, or in the hands of dealers. Prices have continued pretty steady through the season. Oatmeal, at Peebles, from 34s. to 35s. per boll. The young Wheat looks but middling, notwithstanding the good spring. Oats seem in general to braird well; and it is hoped that not much bad seed has been sown: the sowing indeed of either Peas or Barley has been very trifling. A great extent of Potatoes have been, or are about to be planted; which is certainly very prudent, as they are a useful and profitable root both for man and beast, and a great and early relief for the poor. A considerable quantity of Hay is yet on hand; and the young Clovers never had a more promising appearance.——*30th April.*

Wigtonshire Quarterly Report.

The month of February was coarse and tempestuous; but March and April have afforded the finest seedtime that could possibly be wished; so that the spring labour has seldom been brought near a conclusion under more favourable circumstances. For some days past the weather has become frosty and cold; otherwise vegetation would have been brisk, as it was in a more forward state than usual.

All kinds of Live Stock have been selling extremely well; and young Cattle find room and keeping, in place of the aged, which are already driven off in great numbers.—The prices of corn, however, have undergone a material decline, and are not expected to advance again.—The North of Europe being once more opened to our commerce, large importations of Grain are expected.—This at least checks speculation at home; but after the consumpt and devastation these countries so recently experienced, it will be rather surprising if they still contain a very superabundant produce.

The Dairy continues to flourish; but it is alleged by some, that, should we again renew our intercourse with Holland, dairy produce will experience a decline. How far this is correct, time will determine.——*April* 26.

P. S. A strong gale, of three days continuance, was last evening, accompanied by a copious fall of sleet and snow; but soon, it is to be hoped, this unwelcome reappearance of winter will vanish before the early summer's sun.——*April* 28.

ENGLAND.

Cumberland Quarterly Report.

Farm operations, since last Report, have not experienced more than usual interruptions. Wheat looks very well; and should no disease, or a long continuance of severe weather, interrupt its progress, we have every reason to expect an excellent crop. Grazing Stock is very high. Fat Cattle bring good prices. The great advantage of Ruta Baga is now felt by every farmer who has secured a sufficient quantity for this season. It is making a rapid progress in this county; and some even of our most steady opponents to every kind of innovation, are resolved to sow no other variety of turnip. We are indebted for this in a great measure to Mr Curwen, whose

crop of Swedes this year was admirable. He finds the milch cows do not afford so much milk, at *this season*, when fed with Swedish turnips, as they did with the common. His common turnips, stacked, received much less injury than those which were suffered to continue in the field, exposed to the inclemency of the winter months. He has sown a very considerable quantity of wheat upon the turnip ground, which is looking very well. His Mangel-wœrzel, or Root of Scarcity, has given him much satisfaction. He had 50 tons per acre, and finds it answer better than turnips for his dairy. He purposes extending the culture of this root very considerably this year. He has prepared 15 or 20 acres for Fiorin grass; and has planted it nearly a month ago. When Dr Richardson praised this grass so much, Mr Curwen considered it could not be superior to turnips. The Doctor's observations have convinced him to the contrary; and every Cumbrian farmer waits with impatience the result of his experiments. May it not justly be questioned, whether he has chosen the best period for planting it? Mr Curwen's attention to his farm is unremitted; and we have every cause to expect he will neglect no opportunity of introducing every valuable improvement into this county. He sells his wheat flour to the poor inhabitants of Harrington and Workington, for 4s. per Carlisle bushel less than the market price.

Wheat, 45s. p. Carlisle bushel, or 3 Winchesters;—Barley, 25s. 6d. ditto ditto;—Oats, 15s.;—Potatoes, 4½d. per stone.——*May* 1.

Letter from a Correspondent in the South of Devonshire, April 21.

We have had one of the finest seedtimes ever remembered; the seed has been generally sown when the land was in a good state to receive it. Many fields of Barley are now green. I never remember Corn to have come up so soon after sowing, as at the present time. We have also a good appearance of blossom on the Apple trees. A full bearing of apples is much wanted, they having been a failing crop some years. The quantity of land in tillage is more than some years past,—occasioned by the high price of corn. It is generally believed that our crop of Wheat last year was an average crop; but the Barley is both short of an average crop, and the sample a rough one. Oats are a tolerable crop. We have pretty much Corn on hand; and the markets are rather on the decline. The present prices are—Wheat, 16s.; Barley, 8s.; Oats, 5s. per bushel. We have had an advance lately on Butcher meat. Mutton 8½d. to 9½d.; Beef, 7d. to 10d.; Veal, 11d. to 1s. per lib. The contract for Beef, for the Victualling-Office for the Navy at Plymouth, was taken this winter at 3*l.* 5s. per 120 lib.; but from the continued advance of fat cattle, the contractors found their price too low, and therefore forfeited the bond they had entered into of 1000*l.*; and it is supposed they have at least lost 1000*l.* more in buying in cattle. Lean Stock of all kinds have been uncommonly dear this spring, and have kept continually advancing,—until the present time, when there seems a little stop.—Land keeps still upon the advance. Farms in this county are generally let by public auction to the best bidder; which has often subjected the landlord to an indifferent tenant. O-

ther gentlemen, to avoid that evil, have let their estates by tender; and by that means they have had an opportunity of choosing their tenants.

Letter from a Correspondent near Lancaster, April 29.

THERE ſeemed, till lately, every appearance of an earlier ſpring than had been known for many years. But on the 20th, the wind turned to the N. E.; and we have had extremely cold dry winds ever ſince. The long continuance of dry weather, with the late cold, has changed the colour of Wheat from a luxuriant green to pale yellow. The uſual quantity of Wheat has been ſown this year, and looked well till about 10 days ago. The awned ſummer Wheat is more cultivated than it was a year or two ago. It is ſown in April and May; and, when on good land, and the ſeaſon favourable, produces from 30 to 34 Wincheſters per acre. It ſells from 1s. 6d. to 1s. 9d. per buſhel leſs than winter Wheat.

The growth of Barley has declined, becauſe it has been diſcovered that a good crop of Oats or Spring Wheat is more valuable; and the latter is preferable for laying down to Graſs. The early winter varieties of Wheat have been ſown, with ſucceſs, ſo late as the beginning of March. There is no complaint of want of fodder, either Hay or Straw. Swediſh Turnips have not kept quite ſo well as uſual, where they have been got up in the autumn or winter, and ſtored; perhaps owing to the mildneſs of the ſeaſon; Where they have ſtood out, they are good, but they are not commonly grown here. The continued wet in the winter has deſtroyed great quantities of ſheep; ſome have loſt half their flocks. It is ſuppoſed Wool will be ready ſale, at higher prices this year; but there is nothing yet fixed.

Horſes continue very high, particularly thoſe for farming purpoſes, with plenty of bone and action. The breed is changing in this part of the country: the farmers ſee their paſt folly, in putting their mares, already too weak, to blood ſtallions of light make. Now they endeavour to chooſe horſes with as much ſtrength as poſſible, joined to ſymmetry and good action. This ſeems the more neceſſary, ſince the cuſtom of ploughing with two horſes abreaſt is more approved. A few years ago, a man who attempted it would have been conſidered as in the laſt ſtage of folly and madneſs. The Scottiſh ploughs, principally from the neighbourhood of Dalkeith, or made from them, are uſed by many who plough double.

Pigs have experienced a ſudden alteration in price; thoſe about ſix weeks old, ſuch as ſold two months ago at 4s. each, are now ſelling at 20s., and ſo in proportion. In theſe fluctuating articles, it very often happens, that one extreme produces another. This has been the caſe with Potatoes; indeed they are hardly to be ſold at any price. They are ſelling now at 1s. 8d. to 2s. per Wincheſter buſhel, or 5s. to 6s. per 224 lib.

If we may judge from appearances, there is as much grain to thraſh as is uſual at this time of the year: This, together with the large importations which are talked of, (whether with truth or not is uncertain) will, it is hoped, relieve us from a ſcarcity which was once dreaded.

Prices as follow:—Wheat 15s.; Potatoe Oats 5s. 6d.; Beans 8s. 6d.; Barley 7s.; all per Winchester bushel. Beef, prime pieces, 10d.; Mutton 10d.; Pork 9d.; Veal 8d. per lib. Butter 1s. 7d. per 18 oz.; Cheese, 70s. per cwt.

A short horned bull, from the neighbourhood of Darlington, of the improved breed, has lately been introduced into this country. He is thought the best that was ever seen here. The farmers all approve of him, but are very cautious of paying their three guineas. Many heifers of the above breed have lately come into the county.

Letter from Liverpool, 28th April.

'From the beginning of December until about the second week in March, we had a very great demand for Oats into the interior of the country, as far as the middle of Yorkshire; and greater quantities were purchased at this market for those distant parts, than ever we remember to have seen so very early in the season. This unusually great demand gave great encouragement to the dealers here to purchase very freely in the Irish markets, and also caused those dealers in Ireland, who are in the habit of consigning, to make very large consignments; and, notwithstanding the great demand, the supplies became more than equal to it; for it soon became evident that the stocks on hand were fast accumulating; and although prices for some time kept pretty stationary, there was an appearance of a decline a short time before it actually took place. The idea of holding back from the markets by the farmers, seems to have been very prevalent throughout England and Scotland; (but in Ireland they have acted more wisely); and the great demand that we have had into the interior of the country, seems to have been occasioned more from the unwillingness of the farmers to bring to market, than from any real want or deficiency in the crops. No doubt they expected a similar advance to what took place during last summer; but, from present appearances, they are very likely to be disappointed. Since the prospect has been held out of having supplies from the Continent of Europe, the farmers in this part of the country, and we believe generally, have brought their corn to market in great abundance, fully equal to the present demand, which has caused a complete stagnation in the trade here; and Wheat, Barley, Oats, and indeed most other articles, have declined fully 2s. to 3s. per bushel; and as the stocks on hand are very great, and daily increasing, it is but fair to presume, with the present limited demand, that prices will be still lower; but certainly much will depend on those expected supplies from the Continent; but, even allowing the quantity to be very inconsiderable, the very idea is sufficient of itself to keep down prices. It is our opinion, unless the distillers are allowed to work, no other cause will materially affect our market during the summer; because the stocks in Ireland are still represented to be very great, and prices declining very much. They have no view of any export demand to the Peninsula. With reference to our annexed currency and importation list, we remain, &c.

Importations of GRAIN, *&c. into the Port of Liverpool, from the 9th February, till the 28th April 1813 inclusive.*

Date.	*Description.*	*Wheat.* Qrs.	*Barley.* Do.	*Oats.* Do.	*Malt.* Do.	*Beans.* Do.	*Peas.* Do.	*Rye.* Do.	*Shelled Barley.* 112 *lib.*	*Flour* 240 *lib.*	*Oatmeal* 240 *lib.*	*Barrels American Flour.* 196 *lib.*
1813												
Feb.	Coastwise	2,788	1,273	6,678	372	494	29	—	193	201	1001	—
	Irish - -	9,433	12,045	60,351	50	50	—	223	—	3,281	403	—
	American Prize -	540	—	—	—	—	—	—	—	—	—	508
Mar.	Coastwise -	3,684	3,982	8,986	2747	543	264	—	1199	1,227	2762	—
	Irish - -	12,417	5,365	44,678	—	—	93	—	—	5,917	106	—
	Foreign - -	—	—	—	—	—	—	—	—	—	—	—
Apr.	Coastwise -	2,003	2,131	5,622	6314	354	161	—	61	737	1504	—
	Irish - -	3,243	6,116	63,825	—	72	50	102	—	5,042	684	—
	Foreign - -	—	—	—	—	—	—	—	—	—	—	—
	Total -	34,108	30,912	190,140	9483	1513	597	325	1453	16,405	6460	508

Liverpool Current Prices of last Tuesday's Market, 27th instant.

Wheat, per 70 lib.		Oats, per 45 lib. continued.	
English and Welch	15s. 9d. to 16s. 3d.	Scotch Common	4s. — 4s. 3d.
Scotch	13s. — 15s. 6d.	Irish Potato	4s. 9d. — 5s. 3d.
Irish	13s. 3d. — 15s. 8d.	—— Common	4s. 4d. — 5s.
Barley, per 60 lib.		Beans, per Quarter.	
English Malting	9s. — 9s. 6d.	English	68s. — 75s.
Scotch	5s. — 7s. 6d.	Scotch	56s. — 64s.
Irish	4s. 6d. — 7s.	Oatmeal, per 240 lib.	
Malt, per 36 Quarts.		English	48s. — 52s.
English	14s. — 15s. 9d.	Scotch	44s. — 46s.
Oats, per 45 lib.		Irish	40s. — 42s.
English Potato	5s. 3d. — 5s. 9d.	Flour, per 240 lib.	
—— Common	4s. 6d. — 5s.	English Fine	72s. — 76s.
Welch Potato	4s. 9d. — 5s.	—— Second	66s. — 70s.
—— Common	4s. 2d. — 4s. 6d.	Irish Fine	66s. — 68s.
Scotch Potato	4s. 6d. — 4s. 9d.	—— Second	63s. — 65s.

Northumberland Quarterly Report.

The froſt, which had continued through the greateſt part of December and January, terminated on the 5th of February. The remainder of the month was moſtly freſh, and towards the latter part there were ſome heavy falls of rain; but being ſucceeded by very high winds, the wet was readily dried up again, and cauſed little or no interruption to ploughing, and to ſowing Wheat and Beans. The whole of March, and to the 25th of April, (with the exception of the 1st, 2d, and 3d,) was remarkably freſh, dry, mild, and warm, which cauſed a much earlier vegetation than is uſual in this diſtrict. The black thorn was in full blow on the 14th of April, and the leaves of the white thorn nearly fully expanded, which is three weeks earlier than in ſome years;—ſure criterions of the mildness of the preceding ſeaſon. This uncommon fine weather ceaſed on the 25th, and has been ſucceeded by much rain and ſnow, with extreme cold, which it is to be feared will greatly injure the fruit trees that were too early in bloom.

The autumn ſown Wheat upon wet-bottomed ſoils and poor clays, has ſuffered much, by a number of plants being drawn out of the ground by the froſt, in December and January: This injury has not been ſo much felt upon dry and ſtrong loams, where the plants are looking remarkably healthy; as well as thoſe ſown after Turnips in February and March. Oats have alſo a promiſing appearance, having been ſown in a moſt favourable ſeaſon, and not ſuffered any thing yet from froſt, or too much wet.

Clovers are in general good; and ſo early, that in moſt places they have been depaſturing with ſheep for two or three weeks paſt, which has cauſed Turnips not to be a ſcarce article, as was once expected.

The early ſeed time has given an opportunity of getting the fallows a ſecond time ploughed, during the favourable dry weather in April, which will be very advantageous to the Turnip fallows, the greateſt part of which are already in a forward ſtate.

Fat ſtock has been ſold at high prices during the laſt quarter. For two or three weeks, at Morpeth market, the beſt fat cattle were ſold at 10s. per ſtone (of 14 lib.) ſink; and Sheep at 10½d. per lib.

ſink, which is probably the highest price that ſheep were ever ſold for in this diſtrict. The present prices are ;—Cattle from 8s. 6d. to 9s. 6d. per ſtone ſink ; and Sheep from 9d. to 10d. per lib. ſink.

The Corn markets have been lowering for a few weeks paſt. The preſent prices are ;—Wheat from 10s. to 13s. per Wincheſter buſhel; Oats from 5s. to 5s. 6d. ; Barley from 6s. to 7s.——*April* 29.

East Riding of Yorkshire Quarterly Report.

SINCE our last Report, the weather on the whole has been remarkably favourable to the agriculturist. Though a considerable quantity of rain fell in the month of February, the pretty constant high winds kept the land from being injured by a surcharge of water ; and autumnal Wheat was sown through the whole of the month. By this new mode of management, most of the fallows intended for Wheat are covered with that crop. It is not, however, to be expected that the harvest, from sowing at this period, can either be so early, or so productive as it might have been, had it been put into the ground in October.—About the 17th of March, the Bean seedtime commenced pretty generally, the land being then in fine order. Had not considerable importations from the Norfolk and Suffolk, as well as from the London markets, taken place, there would have been much difficulty in obtaining such beans as were fit for seed ; those of our own county having been almost entirely destroyed by the very wet and frosty harvest. As it was, seed was plentiful, though the price high,—not less than from 5*l*. to 6*l*. per quarter. The sowing of Oats succeeded the Beans without intermission ; and both these crops have got well out of the ground.

Spring Wheat seems to be on the decline, in the general estimation here ; the produce being small in quantity, very inferior in quality, and particularly liable to be injured by smut. The autumnal sown Wheats are daily improving ; and though, in many instances, still thin on the ground, the colour is good on most land of fair quality. The Clovers and artificial Grasses look uncommonly luxuriant, and are, even at this early period, a full pasture. Indeed, the fine mild weather ten days ago induced many farmers to stock them with cattle from the homesteads ; a circumstance, at that season of the year, without precedent, unless at a period when fodder was particularly scarce, which is not now the case.

Turnips ran early into top, and had held out so well, in consequence of the favourable state of the weather, that it seemed difficult to get them eaten in due time ; and those who had them to dispose of, found it almost impossible, after the first or second week in February, to sell at any price whatever, to be consumed by sheep ; of course they were principally consigned to the horned cattle. These circumstances may be expected in some degree to injure the Barley crop.

The rot in sheep has been found more severe than was perhaps expected. Few flock masters have been entirely free from its baneful effects ; many have suffered most severely. Sheep are now ex-

ceedingly scarce, and prices higher than have been ever known before. Good one-year old Sheep (provincially Hogs), are now selling from 40 to 60 shillings per head. Store cattle of every description high, though the cold north winds the last week have had some effect in rendering sales more dull. Should the present inclement weather continue, it may so far check the early vegetation, as to reduce the prices.

The fine weather we had through March, and the first three weeks in this month, has been extremely favourable for the fallow lands, which are now in a good state. This may be the means of encouraging an increased cultivation of Potatoes; a circumstance always desireable when the land can be made sufficiently clean to render that an effectual fallow crop. Indeed, an extended cultivation of this valuable root must be considered highly advantageous, whether we view it in a private or a national light. Mr Curwen's excellent practice of steaming this root seems gradually, though slowly, gaining ground here. Many boilers on his construction have been set up, though the scarcity of the crop, and consequent high price the last two years, have occasioned a less consumption in this way than otherwise might have taken place. The public are obliged, by the plan and description of a simple steam apparatus, given in your last Number, though its only advantage over Mr Curwen's appears to be in its first erection, which is less expensive. On a comparative experiment, however, it appears that smaller casks, in an increased number, do the most work.

Our Corn Markets remain much in the same state as when the last Report was given in: the supplies are plentiful, the sales dull. —Present prices for prime samples, Wheat 124s.; Beans from 30s. to 100s.; Barley 70s.; Oats 50s. per quarter, Winchester.—Fat Cattle very high and scarce. Beef 11s.; Mutton and Veal 11s. 6d. per stone, sinking the offal. Pigs much advanced in all stages, and but little Pork brought to market.——*30th April.*

West Riding of Yorkshire Quarterly Report.

As might reasonably have been predicted at the conclusion of last Autumn, the present appearance of the crops of Wheat is generally very unfavourable. The wetness of the usual time of sowing was so extreme, that very few crops could be put in at all, except in the driest lands following clover: As for the Beans, they were so late out that it was impossible to sow many of those lands at all. The result now is, that the fallow Wheats, sown very early, are promising; those on seeds remarkably thin and scanty of plants; a very large proportion after Beans, sown at all possible times through the winter and spring; some of them just coming up, and, on the whole, such as no man of judgment would hazard an opinion about.

The present spring seed-time has been very favourable on all sorts of soils: Beans were sown early, and after a degree of proper preparation by tillage and manure. The Oats were thoroughly well harrowed; and, what is remarkable, many of the Oat lands were

seeded with corn, that had been most miserably damaged, mow-burnt and sprouted, are looking as well, and the plant coming as regularly, as on those sown with the best grain. The ultimate result remains to be seen. Barley has been put in later than might have been the case, had the turnip been earlier eaten off: the soundness of that root was such, that the spring feed produced more than live stock could be found for: yet the work was well performed, and not a doubt appears at present of a good crop. Some loss of Cattle and Sheep ensued upon their feeding on spring-grown turnips in *flower*. Ruta Baga gains ground for admirable spring food. The Clover, and other seeds, are uncommonly fine and promising; much of the last crop of hay remains on hand; and, but for the present cold and stormy weather, the meadow and pasture lands would afford a good supply of young grass. But the fine weather at the beginning of this month, has been, for the last two weeks, succeeded by such a reverse, that what is already grown, it is to be feared, may be destroyed by the cold and frost.

Some of the Turnip fallows are a little broken down and cleaned, but much more remains under one ploughing, and that the late winter one. The summer fallows, for the most part, are untouched. The Swedish Turnip is, unfortunately, universally sown too late in this part of the country.

The best Wheat is now selling at about 16s. 6d.; Oats 6s. 6d.; Barley 9s.; Rye 10s.; and Beans 12s. per bushel of Winchester. No very large stock of grain of any kind appears to be at present in the hands of the grower.—Potatoes, which were studiously kept out of market about two months since, without a shadow of reason, have proved a bad speculation; and turn out so plentifully from all quarters, that the price of them is reduced from 4s. to 2s. per bushel upheaped.

The loss in Sheep, by the rot of two bad seasons, is excessive, particularly among the younger sort; consequently the price of wool, especially of the longer hog wools, is beyond all former precedent.

Fat and lean Cattle, and Sheep, are selling generally at the highest prices ever known; but some little decline has been experienced within the present or last week. Best Beef, Mutton, and Veal, about 10d.; Lamb 1s.; Butter 1s. 6d. per lib. avoirdupois.——*April* 29.

Letter from Wales, 26. April.

The weather for the last quarter has been very favourable for all kinds of farm business; of course our work is in a forward state, and the Barley seed nearly finished, except on the clays, where of late it has rather been too dry: And where they intend Barley on land that has been pared and burned, the favourable weather lately has permitted a great deal of that work to be already done. I do not recollect to have seen the growing Wheats looking better at this season than they in general do at present: But the dry weather, for the last three weeks, has been rather against the look of the other grain, and the braird is not so regular: A little warm rain will, it

is to be hoped, recover it; and to-day we have had some showers, and may expect more: It has been colder for the last three days, and vegetation seemed rather at a stand. I do not recollect a more favourable spring; many have already turned their Cattle and Horses to grass, and they have a full bite. Fodder has been in plenty through the winter. Cattle of all descriptions has continued to go off at very high prices, and the demand still continues; of course, that kind of stock is much reduced. Sheep are also dear and scarce: It was supposed, last autumn, that they were more healthy than the year before, and not so much affected by the rot: But the loss during the winter has been very great, and ewes and lambs never were so dear. Butcher Meat of all kinds very high. Beef and Mutton from 9d. to 11d. per pound; Lamb 1s.; Veal 10d. Cheese and Butter have been at a high price through the winter, but have lowered considerably within these three weeks. Corn has been nearly stationary for the last three months; but Wheat just now does not sell so readily, although I do not find it has lowered in price.—Wheat from 40s. to 43s. for 168 pounds; Barley from 23s. to 26s. for 21 gallons; Oats from 40s. to 46s. per quarter; Potatoes are dear, and likely to continue so. In this neighbourhood, there do not appear to be so many planted as during last year. There is a great bloom in our orchards; but it is feared they have come too forward. The Gooseberries are a most plentiful crop, and are already coming to market for tarts.

Wiltshire Quarterly Report.

The unfavourable apprehensions expressed in the last report respecting the lambing season, we are sorry to say, have been too much realized. Many gentlemen who keep large flocks, have lost a considerable number of their lambs by '*warping*,' and also by '*scouring*.' In addition to which circumstance, whole flocks in this and neighbouring counties have been '*cothed*.' Of course it will not excite surprize, that stock sheep and lambs, at our fairs and markets, should have commanded high prices. Butcher's meat of all sorts is exceedingly dear; and fat sheep have been sold at one shilling per pound. Hogs have advanced very considerably in price. Good Bacon Pigs meet a brisk sale, at from 17s. to 18s. per score. Dairy Cows, at our late fairs, have fetched unusual prices; but the *produce* of the dairy has fully kept pace with *their* increased value. Of Horses we need scarcely remark that they continue to advance in price. All sorts of Cattle have been particularly dear, but more especially working oxen, owing to the increased demand for these useful animals, and the scarcity of cattle in general. And here it may be well to remark, that we find them by experience much more tractable, and their power greatly increased by drawing in harness with collars. Some of our agriculturists drive a pair of oxen in a *whip rein plough*, though we are of opinion that on *our soil* this practice will never become general. On our heavy soils wheat generally looks well, but on the lighter ones the plant is but indifferent. We

have had a remarkably favourable season for barley sowing, bean planting, and spring grain in general. Clovers and other grasses are forward and luxuriant. An unfavourable sentiment is gaining ground respecting the culture of spring wheat, owing to the general failure of crops for the two last seasons. We are inclined to believe it will be more usefully applied as a substitute for winter wheat, than as a *rotatory* crop. Our markets for the few last weeks have been dull, and rather sinking. Best Wheats 130s. per quarter.—*May* 1.

POSTSCRIPT.

Linplum Ox. This ox was fed by Mr Bogue, at Linplum, in East Lothian. He was of the Argyleshire breed, six years old, and was fed upon grass, turnip, and hay, till within 18 months of being slaughtered, when he was allowed oats and broken beans. M. J. Pringle, Flesher, Edinburgh, who killed him a few weeks ago, has certified that the weight of the four quarters was 70 stone Amsterdam, of the tallow 10 stone, and of the hide 4 stone 3 lib.

Fiorin. Mr Baird, of Shotts Ironworks, who obliged us with the communication on Fiorin, inserted in our First Branch, has since informed us, that it has not been in his power to make the comparative experiments suggested at the conclusion of our last Number; but he promises to do so next season, and to favour us with a full account of them for a future Number. In the mean time, our readers will be pleased to know, that his cows, for a month that they were fed on fiorin hay, gave 'one third more butter from the same quantity of milk,' than they did either before or afterwards upon their usual food.

By advices from London of the 3d May, the quantity of Wheat imported by the Baltic fleet is stated to be about 12,000 quarters. Had the whole been sent to London, it would not have been equal to six days' consumption of that metropolis, which requires from 15,000 to 16,000 quarters weekly. We have not learned distinctly what is the quantity of Oats or other kinds of grain imported in that fleet, nor what further importations are expected.

NOTICES TO CORRESPONDENTS.

Calculator's communication on the division of a Triangular Field, shall be presented in next Number, along with several other papers, which were received after the First Branch had been fully occupied.

We owe an apology to our Reporters for having curtailed several of their Communications, in order that we might not much exceed

our usual limits. But this liberty has been used only in so far as regarded the account of the state of the weather; which, though it was quite proper for each of them to notice, was found to have been so much alike for the last quarter in every district, as to render the narrative in every Report but little interesting to our readers. At the same time, we are glad to observe, that several of the Reports embrace a variety of interesting particulars, of a local and temporary nature, over and above an account of Agricultural Operations and Markets.

A 'Constant Reader' wishes to have an accurate account of the application of the Refuse of Mr CURWEN's Coal-works, as manure, which was alluded to in a paper concerning that gentleman's management, inserted in last Number.

Another Correspondent considers it of much importance, to know what each kind of Crop actually costs the farmer; and, in order to ascertain this, suggests, that it would be highly desirable to see a correct statement of the expenses, not for one year only, but for a rotation, whether of four, six, or any other number of years. When the prime cost of each kind of Crop had been thus ascertained, the expense of an acre of Wheat, Oats, Beans, Turnips, &c. might be accurately known, and even that of every bushel of Grain, and of any given weight of Hay and Roots. Whatever might be the fluctuations of the market, farmers would, by comparing this prime cost with the selling prices, see at once, as well as the merchant does by his dealings, how far they were gainers or losers by every different article of produce. We beg leave to recommend this question to the notice of our Correspondents, who will see the necessity, however, of specifying both the natural, local and accidental circumstances of the land, with which any calculations may be made. Though these circumstances will, no doubt, occasion a great difference, and prohibit the universal application of any calculation, however accurate; yet, to deny that such an inquiry may be interesting and useful, is to assert, indirectly, that there is no criterion by which we may determine the rent that should be paid for land, nor the rate at which importations should be permitted or prohibited, with a view to the interest of the consumer, on the one hand, and that of the proprietor and farmer, on the other. To know, for instance, whether 8s. for a bushel of Wheat will remunerate the British farmer, it should be known at what expense he can raise it under the existing circumstances of labour, rent and taxes.

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ERRATUM IN LAST NUMBER.

P. 51, 10th line from the bottom, *for* '880 yards,' *read* '880 links of *Gunter's chain.*'

D. Willison, Printer, Edinburgh.